UNIVERSITY OF NEWCASTLE

SCHOOL OF EDUCATION, COMMUNICATION & LANGUAGE STUDIES

EdD THESIS

NEGOTIATING INFORMATION LITERACY PATHWAYS:

LEARNER AUTONOMY IN HIGHER EDUCATION

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ABSTRACT

This study examines ways in which the practice of information literacy is experienced by undergraduate students in Biology and Social Sciences, using a learner-centred, phenomenographic approach. It challenges simplistic connections which are made between availability of information, learning and learner autonomy in the contemporary information environment. Variations in the experience of information literacy practice in relation to academic assignments are presented. Four distinctive information literacy pathways, or ways of experiencing the process, are identified. The learner-centred perspective has enabled clear distinctions to be made between information literacy pathways, in particular clarifying the concept of focus which has been problematic in earlier work.

The Minimalist pathway was associated with poor academic performance. The other three, Gathering, Pinpointing and Connecting, enabled students to be successful in their courses but differed in terms of the development of: subject-matter autonomy; confidence and a sense of competence as a learner; and personal engagement with academic work. The student experience is viewed as a negotiation of ways to act involving the study context, subject knowledge and the student's own role. A key differentiating factor is the student's ability to discern subject knowledge as something which exists outside its embodiment in study tasks. A further factor is the position of the student in relation to both the subject and the study context. This is associated with differences in the sense of control and students' perceptions of themselves as learners.

Suggestions are made for educational practice. Attention must be given to the processes of learning and not just its products, such as assignments. A developmental approach towards all students is needed. Even students who appear to be doing well may need guidance to develop autonomy in relation to subject matter. The electronic information environment can provide opportunities and tools but it is interpersonal interaction, between lecturers and students and amongst students, that builds the bridge between information, learning and learner autonomy.

Chapter 1

Introduction

1.1 Oxford 1998 ....

In September 1998 I attended the Association for Learning Technology (ALT) Conference in Oxford. I had just started a new job in my university as eLearning Project Manager. It was a very new world to me; I had a good background in education but my knowledge of information and communication technologies (ICT) and their uses in teaching and learning was limited. The conference was an interesting, sometimes inspiring and frequently confusing experience. Like any learner, when confronted with a lot of new information I had little alternative but to try to make sense of it in terms of what I already knew. I thought I knew something about learning and I encountered presenters talking about 'delivering learning' using ICTs. Some of the innovations that they demonstrated offered very sophisticated presentations of various subjects and topics. But where was the learning and the learner? On one or two occasions when I ventured to ask how the systems or materials had been used and how learners had responded there was a pause whilst the presenters tried to gather their thoughts on this unexpected question. What I did hear frequently was that learning using ICTs would be more independent. Learners would be able to learn when and where they wanted; choose different ways of learning (this usually seemed to mean different media formats); cherry pick the chunks of learning that they wanted, discarding the rest; manage learning for themselves, calling upon the services of tutors only when necessary; and select from vast amounts of ICT-delivered resources to help them.

It is worth noting that I wrote above that learning *would be* more independent. I found that many people at the conference seemed to live in the future. When the latest technologies were perfected, when the network capacity was enhanced, when mobile technologies made learning opportunities even more ubiquitous, then the world would be as they described it. What was happening now, and how we were using the learning technologies already available seemed to

be of much less concern. There was also frequent mention at the conference of 'information'. With new technological opportunities, information could be provided in a range of new, exciting and more effective ways and it could be made more accessible to students. Now here was something I did know about because I had worked as an academic librarian for eight years. Once again, however, it became clear that my ideas of 'information' were not widely shared. Often access to information meant simply access to ICT systems. Information skills meant what I would have called computer skills. Of course ICT systems needed some 'content', which I soon discovered was a new word denoting something more like information as I knew it. But what mattered about content was its size (megabytes or gigabytes - whatever they were); its form, such as hypertext or video; and how fast it could move. This new kind of information, called content, often seemed to me to be without content! However this was probably because I identified with the ranks of 'predatory librarians' who, according to a conference plenary speaker, thought they had something to say about information and must at all costs be kept at bay so that they did not hinder new developments in ICT and learning on campus.

My account of the ALT Conference may seem a little extreme but it offers a fair impression of how I felt about the learning technology world at that point and it raises the key issues of learning, information and independence that have remained with me ever since and ultimately resulted in the research which is reported here. As I continued in my role as eLearning Project Manager, I read more widely and attended more conferences. I learned through experience and by supporting colleagues across the university in their use of ICTs in learning and teaching. I engaged in some research, often in collaboration with colleagues in the Information Management Research Institute who were prime examples of predatory librarians! All of this meant that I was better able to make sense of my initial confusions. With the help of colleagues I met every day and researchers and writers whom I never met, I developed a clearer perspective and was able to identify what questions I really wanted to ask. The research for this thesis has provided me with some of the answers and some further questions.

1.2 The significance of information

Perspectives on information in educational contexts can be illuminated by considering the place of information in the broader social context. Most people in Western economies would agree, if asked, that we live in an Information Society. The term is widespread, used in everyday conversation, in the business world, in the media, by academics and by politicians and policy-makers. Even those who are sceptical of the idea of an Information Society as something completely new acknowledge the special significance of information in contemporary society and the so-called 'informatisation' of many aspects of social and economic life (Webster, 2002). In definitions of the Information Society, information is inextricably linked with ICT and, to many people, the term information simply means new technology. Many governmental initiatives (for example, Bangemann, 1994) have attempted to support the Information Society by 'wiring up' and providing access to networks and hardware. Webster (1995, 2002) notes the emphasis on information as technology and the claims made by many Information Society proponents and analysts that this technology is, of itself, creating a new kind of society. This view is underpinned by a form of technological determinism (Robins & Webster, 1989), where we must accept that the technology appears in our society as if it had descended from the gods rather than having been developed within society and shaped by society. Once the technology has arrived we are therefore compelled to adapt to it and change our ways. I had found these same ideas in an educational context where information and ICT were conflated and together constituted a technology assumed to possess transformational power and to demand new forms of activity and behaviour on the part of teachers and learners.

1.3 Information and meaning

At the learning technologies conference described above, I had noticed that information was deemed to have a size and a speed, but its informational content was neglected. Yet, in most everyday contexts, people are interested chiefly in the content or meaning of information. Someone assembling a piece of flat-packed furniture at home is most interested in how well the enclosed information enables them to complete the task. Webster (2002) notes that Information

Society thinking views information largely in quantitative and meaning-free terms. Whether we consider information to be meaningful or meaningless perhaps depends on its place within a family of related terms such as: data, facts, theory, understanding, knowledge, opinion. Yet, distinctions between such terms have never been resolved in a definitive manner, even within the information science literature. Particularly important to me is a qualitative distinction between information and knowledge. More information or even better organised information does not constitute knowledge. The concepts of information and knowledge lie at either end of a spectrum, with distinctions based on the extent to which human activity is required for their existence. Information, at one end of the spectrum, is that which is recorded or codified: data, facts, descriptions, or opinions. Information has an independent physical existence in books, databases, maps, filing cabinets and so on. On the other hand, knowledge is a human creation which requires a human presence for its existence. Furthermore, knowledge is not simply acquired: rather it requires maintenance through human thought and action.

From this point of view it would be mistaken to say "There is a lot of knowledge in the library". A better understanding would be that the library has information which can be used in the development of knowledge, as in the case of students referring to a textbook or accessing online materials. Unfortunately, Information Society thinking promotes the use of the terms 'information' and 'knowledge' interchangeably and there has recently been a marked shift in favour of the term knowledge, so that we hear much more about knowledge economies, knowledge workers, knowledge transfer and the Knowledge Society. Within educational settings, we have to keep in mind that the provision and presentation of recorded information through ICT, no matter how sophisticated, 'interactive' and flexible, cannot of itself constitute knowledge. There is a danger of almost unconscious absorption of ideas such as knowledge transfer which can lead to the disappearance of the learners and the learning process which had puzzled me at the learning technology conference. Access to information is important, but human interaction with the information is vital in order to develop knowledge.

1.4 Information and learning

I have defined learning above as interaction with information in order to develop knowledge. This may seem uncontentious but, if that is so, then it shows how thinking about education and learning has been affected by informatisation, that is, the highlighting of the special significance of information in social processes (Webster, 2002). Certainly, in Higher Education, information handling has come to the fore in recent years. For example, in the UK, the Dearing report (NCIHE,1997, para. 8.34) suggested a need for students to *'develop advanced skills in searching for and selecting valid, relevant and up-to-date information from computer-based storage'*. MacFarlane (1995, p.64) suggests a significant change in the educational process where students need to *'manage their own learning processes to an unprecedented degree ... to swim in a sea of information'*. The value placed on learners as independent information users is mirrored in the context of information or knowledge workers who are also expected to be active information users:

> *'As more and more manual and cognitive activities have been taken over by computers ... knowledge ... has become the ability to find relevant data and to derive meaning or information from it ... The Information Society demands from its citizens not only reproductive skills but also productive skills, enabling them, even in new circumstances, to generate and evaluate answers to open, non-standardised questions.'* (Brummelhuis & Plomp, 1999, p. 423).

Not only is the learner being constituted as an information user, but the processes of teaching and learning are also being re-conceptualised with a shift in the teacher role towards acting as a guide to students in their acquisition of knowledge from a range of information resources. The quality or meaning of information is not very likely to be absolutely neglected in Higher Education contexts where theoretical knowledge and codified information are seen as important. Nevertheless, access to information, normally using ICT, is seen as a technology which demands a transformation in the educational process. Pickering (1995) suggests the advent of the Internet and the Web as a means to realise the radical educational transformation envisaged by Illich. Kroeker (1999) predicts that direct access to information resources by students will make some traditional approaches to teaching redundant. Greening (1998)

identifies the need for a change in educational philosophy, following the broad tenets of constructivism, to take advantage of the 'opportunities' on offer.

1.6 Information and autonomy

The emphasis on the abilities of learners and knowledge workers to handle information demands a degree of independent learning and working. I was aware of this when I heard learning technologists talking about 'any time, anywhere, just-in-time' learning, undertaken with very little direct contact with teachers and fellow students. However, learning on one's own is only one aspect of independence. If learners are to make sense of information and use it purposefully, they must also exercise some independence of thought. This connects to traditional academic ideas of critical thinking, use of evidence and independent judgement. There seems to be a need to consider learning autonomy more broadly since students are apparently required to: decide for themselves when they need to access information and what they need; select information resources for themselves; review, evaluate and make sense of information; and 'put together' or 'draw upon' information for specific purposes. Taking the notion of autonomy even further, there is widespread support for the idea that access to information can lead people to spontaneously pursue learning activities and personal projects:

> *'One can envision a society in which adults freely and regularly explore new worlds of knowledge and information ... I predict that even more in the future will pursue their own learning activities'* (Gooler, 1986, in Candy, 1991, p. 179)

Even beyond the idea of autonomous engagement with learning, Bruce & Candy (2000) attach still wider benefits to information use:

> *'we believe that how people use information in pursuit of their personal and professional lives is the key to their empowerment, their development and even their happiness'* (p.3).

1.7 Information literacy

I had initially been puzzled by how the leap was made from the availability of information, accessible through ICT, to the assumption that this would produce learning, knowledge and autonomy. As I explored further, I found a bridge which spanned the divide and that was the

concept of information literacy. It is encapsulated in a statement from the Council of Australian University Librarians (2001):

> '*Sheer abundance of information and technology will not in itself create more informed citizens without a complementary understanding and capacity to use information effectively*'. (p.2)

That 'understanding and capacity' is called information literacy. It is based on a recognition that it is what people do, think and feel when they use information to learn, or to solve a problem, or make a decision, that is important in determining both the outcomes and the nature of the process. Information literacy became a key construct in my thinking; a way of naming and putting boundaries around my area of interest and a way of connecting the external world of information with the internal worlds of learning, knowledge and autonomy.

1.8 A legitimate investigation

Through experience, research and reflection I developed a clearer sense of what questions it would be legitimate and important to ask. It was evident that information was widely seen as important in society and in Higher Education. There was little danger that embarking on research which looked at aspects of information use would be seen as irrelevant or unimportant. It would be of interest to educators, information and library professionals, and learning technologists. I was not prepared to accept that new, and ever-changing, information technologies, new means of access to information, and the explosion in the amount and types of information available, would determine learning behaviour. The often-proposed changes to learning might be logical and plausible but were not inevitable. I wanted to ask what learners did in the current information environment, rather than specify what they would do, or ought to do.

Whatever was going on, I was sure that the information literacy experience of the learner played the most significant role in it, superhighways, multimedia and learning management systems notwithstanding. I was not convinced that it was necessary to live in the near future, where the latest technological or organisational advance would change everything and render what had gone before irrelevant. I anticipated that learning in an electronic information environment might

be different in some ways, but in many ways it would demonstrate continuities with the past. There was no need to discard everything we already knew about learning and information use which researchers had built up over many years. I also believed that the idea of independence was crucial as well as prevalent and too valuable to be reduced to an impoverished version of autonomy where learning was individualised and undertaken in isolation. This led me to embark on an investigation of experiences of information literacy within the group of learners who were of most personal and professional significance to me – university students. I set out to answer two specific, closely linked, research questions:

> In what ways is the practice of information literacy experienced by undergraduate students in the contemporary information environment?
>
> In what ways does student autonomy relate to information literacy?

In the course of the investigation I have tried to draw together the themes of information, learning and autonomy in order to contribute, alongside other researchers, to the evolving story of learning in Higher Education.

Chapter 2

Learning, information and autonomy

2.1 Introduction

The aim of this chapter is to synthesise the main elements of the conceptual framework in which the research is based. The three substantive elements of learning, information and autonomy have each generated extensive bodies of research, theory and practice. The primary consideration here is work which has a learner-centred perspective. This means research that attempts to portray the experience of learning, information use or autonomy from the perspective of the learners involved, an approach which has been termed a second-order perspective (Ashworth & Lucas, 1998). For example, when asking questions about what learners do when they use information, this means finding out how they think and feel about what they are doing and how they explain their decisions and actions. It does not mean only obtaining data on how they construct information searches in a technical sense, nor solely enumerating how many information resources of which kinds they use. It also requires an investigation of learner perspectives on the activities in which they are engaged, rather than asking them to fit their experiences into pre-determined categories such as those which might be presented in a questionnaire derived from existing theories.

My thinking has been strongly influenced by what has been arguably the most influential body of student learning research in recent decades in UK Higher Education (Richardson, 1999). This body of research, which has developed since the early 1970s, is most often called 'approaches to learning' research because it has produced and popularised the concepts of deep and surface approaches to learning that are now widely known and used (Marton, Hounsell & Entwistle, 1997). I had been involved as a researcher in this tradition for a number of years (Sambell, McDowell & Brown, 1997; Sambell & McDowell, 1998). It is also sometimes known as phenomenographic research on the basis of its methodological approach (Marton & Booth, 1997). Phenomenographic studies which bring together approaches to learning research and

either information literacy or autonomy are relatively few in number. Studies which draw together all three, within Higher Education, are scarce. However, this conceptual framework is by no means limited to studies within the phenomenographic tradition. It is rather the principle of the learner perspective, the second-order focus, that has guided the selection and synthesis of work on learning, information and autonomy used here.

The reasons for reviewing previous empirical and theoretical work might seem self-evident. The academic (scientific) approach is to build on the work of earlier researchers, to see whether findings can be replicated and existing theories applied, to identify gaps in knowledge, to pursue questions which previous researchers have raised but been unable to address. However, this conception of cumulative development of knowledge and the verification and testing of theory has been challenged, not least by qualitative researchers who value interpretation of experience in context (as in phenomenography) and the development of inductive theory from empirical data, such as grounded theory (Glaser & Strauss, 1967). The explicit use, or even subliminal awareness, of pre-existing concepts and theories can be seen as contaminating the understanding and interpretation of a specific setting. For this reason, Ashworth and Lucas (1998) recommend deferring any literature search until a late stage of research when data analysis has been completed. My position is less radical. It seems perverse to deliberately ignore what previous researchers and, indeed, professional practitioners have to say in the substantive area and then be forced re-discover many ideas and connections that are already well known. The use of existing substantive work acknowledges that most of us need the ideas of others to develop our own to any level of sophistication. I viewed previous relevant research as providing me with sensitising concepts with which to design the empirical study and as a means of identifying contentious or puzzling areas where there was a need to probe beyond the apparently self-evident. This is not so much about building on the work of others in a positivist sense, but about conceptual clarity and sophistication (Evans, 2002) which can only be achieved through active engagement with both the 'real world' in empirical work and the 'conceptual world' of research and theory; that is by combining inductive and deductive approaches.

2.2 Learning in Higher Education: the approaches to learning perspective

The methods, world view and concepts of approaches to learning research form a background to this research and are also drawn upon by work on information literacy and autonomy in learning which is addressed here. The research gives primacy to the learner's experience, which is studied through the perspectives of learners themselves. It is also relational in that experience is viewed as being constituted in context, a relation between the person and all aspects of the situation (Prosser & Trigwell, 1999). The main substantive components that have been addressed by approaches to learning research are: the learner, the learning context (including teaching); the learner's perceptions of the context; approaches to learning tasks; conceptions of knowledge and of learning; learning outcomes; and the nature of understanding. The elements which connect most directly with information literacy and learning autonomy are: understanding; conceptions of knowledge; and approaches to learning.

Approaches to learning research employs a particular view of what counts as subject-related understanding. This includes having mastered the key concepts in the domain, and having a well-structured framework of knowledge. Prosser & Trigwell (1999 p.109) suggest that students who have gained understanding are: *'able to see relations between elements of their understanding in a subject'*. Understanding also has process elements in that it enables students to apply knowledge and concepts in new ways and to continue to build their own knowledge. Understanding tends to be viewed largely in cognitive or intellectual terms and to concern codified or propositional knowledge which is public and is therefore open to external, collective judgement. Phenomenographic research on understanding in specific subject domains categorises variance from a correct or complete understanding. For example, student understandings of specific scientific concepts may be arranged hierarchically, with the highest level corresponding to the correct understanding, according to subject experts (Ramsden, 1988).

The nature of understanding is a key dimension in the research, and it enables distinctions to be made between different approaches and conceptions of learning. The view of understanding

has much in common with that employed in studies of autonomy in Higher Education settings which highlight an increasing sophistication in epistemological thinking and the development of high-level understandings (Perry, 1999; Candy, 1991; Baxter Magolda, 1992). One strand of approaches to learning research directly addresses learners' views of knowledge and learning. A broad distinction has been made between quantitative and qualitative views (Dahlgren, 1997). A quantitative perspective views knowledge as facts and learning as accumulation of facts. Those with this perspective may view academic learning as acquiring a lot of information. On the other hand, a qualitative concept of learning views knowledge as integrated constructs rather than discrete chunks of information. Someone who knows more has a better integrated, more complex or sophisticated understanding of the topic, rather than simply knowing more facts. A hierarchical description identifies varying views of learning as:

1. *A quantitative increase in knowledge*
2. *Memorising*
3. *The acquisition, for subsequent use, of facts, methods etc*
4. *The abstraction of meaning*
5. *An interpretative process aimed at understanding reality*
6. *Developing as a person*

(Marton & Saljo, 1997, p.55)

It is clear that such varying viewpoints would have a direct effect on how learners handle information.

Approaches to learning research has been successful in establishing relationships between conceptions of learning, attainment of understanding and the practices of learners in study contexts. Deep and surface approaches to learning are the best known elements of the work as a whole. A deep approach is contrasted with a surface approach in Table 1 below. This summary is based on the work of a number of authors, including Biggs (1999), Entwistle (1997), Marton, Hounsell & Entwistle (1997), Prosser & Trigwell (1999), Ramsden (1992).

Table 1: Approaches to learning

Deep Approach to Learning	Surface Approach to learning
Key intention: to understand or make sense of what is being learned *Strategies* Active engagement with new knowledge and relating it to what the student already knows Making links between current learning, other subjects and the outside world. Employing critical thinking: e.g. looking for patterns and underlying principles, reviewing evidence, arguments and their relationships to conclusions Keeping in mind the task as a whole and seeing the parts in context Reflecting on and monitoring own understanding and processes of learning *View of learning:* Knowledge is developed through a process of making sense Interest in the subject matter Expectation of enjoyment or satisfaction in learning Personal involvement and commitment to learning *Learning outcome:* May achieve a good conceptual understanding	**Key intention:** to cope with course demands *Strategies* Memorisation of facts Adoption of routine procedures Fragmentation of learning into unrelated tasks and compartmentalisation of knowledge Studying without reflecting on purpose or strategy Accumulation of knowledge with little attempt to make sense of new ideas. *View of learning:* Knowledge can be acquired and reproduced without transformation Learning seen as an external imposition Learning seen as stressful and a cause for worry No personal interest in the content of learning *Learning outcome:* Unlikely to achieve conceptual understanding

In addition to deep and surface approaches to learning a third approach, normally termed strategic or achieving, has also been identified. The main intention in this approach is to maximise return on effort and achieve high grades. The strategies employed are to concentrate almost exclusively on meeting assessment requirements, actively investigate those requirements and acquire as much guidance and information on them as possible. Students are also likely to manage their time and effort effectively in order to meet their goals. They may, if opportunities are available, set out to impress lecturers or address lecturers' individual idiosyncrasies or preferences as assessors. The view of learning is as a set of rules to be followed in order to obtain desired outcomes in terms of marks. There is some debate about whether a strategic approach can lead to the development of a good conceptual understanding.

Ramsden (1997) views strategic learners as attempting to achieve high grades without understanding. Biggs (1999) argues that since such learners are driven by assessment, appropriate assessment design may be able to promote good learning and the development of understanding. More recently, Entwistle, Tait and McCune (2000) have identified groups of learners with a deep *and* strategic approach; that is students who are seeking both to understand and to manage the context of study effectively.

Approaches to learning have been researched over many years and demonstrated in a wide variety of educational contexts. Perhaps the most important element is the student's intention either to understand the subject matter or to deal with the subject merely in order to meet course demands, in some cases even avoiding understanding. However, learners do not generally have completely fixed approaches to learning. They may adopt either deep or surface approaches depending upon their perception of the context in which they are learning. This is an illustration of the relational nature of experience. Distinctions between deep, surface and strategic approaches to learning re-appear in some of the information literacy research, particularly in terms of a task or coping focus contrasted with a focus on learning in the sense of making meaning and gaining understanding. The nature of understanding and the ways of attaining it are paralleled in many studies of learning autonomy. A qualitative view of knowledge and learning which accommodates the possibility of questioning knowledge and anticipates different viewpoints and perspectives is an essential component of a deep approach to learning and is necessary for developing understanding and epistemological autonomy.

2.3 Autonomy and learning

Autonomy in the broad sense, which Candy (1991) calls 'personal autonomy', is defined as the individual acting and thinking independently of external authority and being free from inhibiting personal constraints such as low self-esteem. The individual is thus able to act and think in a rational and self-controlled manner. Boud (1988, p.18) describes this as being 'master of oneself' whilst Candy (ibid, p.20) refers to 'being in control of one's own destiny' and Ecclestone (2002, p.34) suggests having a 'mind of one's own'. Candy (p.121) sees this view of autonomy

as '*part of an individualistic, anti-authoritarian ideology which is very deep-rooted in Western capitalist democracies'*. In a similar vein, Ecclestone (ibid, p.34) relates it to Western philosophical traditions of individual agency and to liberal humanist notions such as self-determination and self-actualisation. The ideals of autonomy conventionally applied in Higher Education relate closely to broad definitions of personal autonomy. Autonomy is clearly a complex construct; all definitions include several dimensions often referring to: knowledge/cognitive elements; the self; and values/moral reasoning. One way of summarising this in straightforward language is to consider that autonomy encompasses abilities to:

- decide for oneself what is true
- decide for oneself what is right
- act according to one's decisions and judgements.

To illustrate, Boud (1988) and Candy (1991) provide lists of characteristics or actions which would be displayed by an autonomous person. In relation to external demands and circumstances, an individual displaying high levels of personal autonomy would question and challenge what others might simply take for granted and would not agree or comply with something which was personally unacceptable to them. In relation to themselves, they would develop their own goals and plans, determined by rational reflection and based on what they wanted to achieve. Their actions would be well governed through the exercise of reflection, will power, self-restraint and self-discipline. Underpinning personal autonomy lies a set of personal values and beliefs and a view of oneself as autonomous.

When autonomy is discussed in relation to education and learning, it may refer to an outcome, a pedagogic technique or a process. Autonomy as an outcome has been a theme of developmental models in Higher Education for many years, with autonomy being equated with the higher stages of academic development and represented by statements about critical thinking, independence of thought and action, and personal commitment (Baxter Magolda, 1992; Belenky et al, 1986; Ecclestone, 2002; Perry, 1999). Perry viewed the highest levels of autonomy as being characterised by: the use of critical reasoning in a relativistic and contextually-sensitive way; a respect for other views alongside a commitment to one's own views; and a strong sense of one's own values and stance in the world. Ecclestone similarly

includes as components of critical autonomy: viewing knowledge as provisional and contextual; situating subject-related knowledge in a wider context; and the development of social commitment and personal responsibility.

Autonomy as a pedagogic technique is found when learners are 'given autonomy' through methods which may variously be termed student-centred, self-directed or independent and include approaches such as problem-based learning or negotiated study programmes. In such cases the learner has some control and choice and '*takes some significant responsibility for their own learning over and above responding to instruction*' (Boud, 1988, p.23). However the extent of independence may range from 'self-monitoring', where the student is managing his or her learning within a restricted context, to a more pro-active, self-directing approach where the student makes more significant choices about what and how to learn without close guidance. Although this may seem far removed from the ideals of autonomy discussed above, there is often a claim that such practices will promote the development of autonomy in students beyond the immediate learning context. Some studies have made positive connections between student-centred pedagogic methods offering elements of choice, control and responsibility and the development of personal or critical autonomy (Ecclestone, 2002; Baxter Magolda, 1992).

Finally, autonomous learning can be seen as an integral part of any learning since, in every case, it is only the learner who can actually learn, whether this learning consists of memorising lecture notes or designing and carrying out an independent investigation. This is especially true from the perspective of constructivist pedagogy which is becoming increasingly prevalent in Higher Education. Although there are many versions of constructivism, one common theme is that '*meaning is not imposed or transmitted by direct instruction, but is created by the students' learning activities*' (Biggs, 1999, p.12). Ecclestone (2002, p. 34) provides a definition from Law

which suggests that learners behaving autonomously act:

- Consciously (not without thought)
- Independently (not compliantly)
- Imaginatively (not routinely)
- With commitment (not remotely)

From the lecturer's perspective, good autonomous students are those who take charge of what they do and personally engage with it. Higgs (1988, p. 50) identified the following dimensions of autonomous behaviour in university students:

- active pursuit of goals
- search for meaning
- self reliance
- pursuit of excellence
- adventurousness
- commitment to task
- enthusiasm for task

An interesting outcome of her research was the suggestion that 'search for meaning' might be in conflict with some other aspects of autonomous learning behaviour such as 'commitment to task'. For example, self-management in the learning process, shown by systematic working and meeting task requirements, might conflict with attempts to gain understanding of the subject matter through a deep approach to learning. This is an indication of the likely significance of resolving competing demands in students' experience of autonomy in learning.

Autonomous learner behaviour can be summarised in terms of the two fundamental dimensions of control and ownership identified by Candy (1991). The idea of control refers to the extent of decision-making and choice the learner can exercise over aspects of the educational process such as objectives, content, pacing, learning methods, assessment and subject matter. Ownership refers to a sense of who the learning is for and why it is being undertaken. It relates to the learner's intrinsic motivation, commitment and personal investment in learning activities and subject knowledge. The location of ultimate authority is also pertinent. Candy argues that

only when learners move outside formal educational settings can they have full ownership, in the sense that they can choose to learn what they want and can judge their own learning. In formal settings, the authority of the teacher and the institution is always present no matter how much control is devolved to learners. Autonomy is clearly a matter of degree but it is often difficult to make external judgements of the extent of autonomy since it is largely defined by internal states of mind or feeling which are not directly observable.

The emphasis on a sense of control and ownership is important in distinguishing the way in which autonomy is viewed in this research. This perspective links autonomy to the overarching goals of higher education such as critical thinking, rational thought based on the use of evidence and a sense of responsibility for actions and their consequences. Such goals remain widely espoused and can be seen to underpin pedagogic techniques and processes designed to promote autonomy but they are value-based and therefore open to challenge or rejection. Many commentators feel the need to defend the ideals of autonomy from various perceived threats such as a shift towards vocational and economic goals (Barnett, 1994) and challenges to the certainties of academic knowledge and rational thought posed by post-modern thinking (Taylor, 1999). If the traditional ideals of autonomy were to be rejected then autonomy in higher education might be seen as irrelevant or take on a different character. Even now, autonomous teaching and learning methods and processes may claim to promote high level goals but may not succeed in doing so (Gow & Kember, 1990) or may be serving other purposes. Techniques of self-managed learning requiring students to organise their studying, make choices and, often, learn on their own, may be introduced in order to meet specific vocational training needs or to provide education more cheaply. The opportunities afforded by ICT and electronic information when combined with naïve forms of constructivism may lead to resource-based learning approaches which leave students to 'find out for themselves'. Such inadequate pedagogic models may be detrimental to development of autonomy and learning.

2.3.1 Subject-matter autonomy

Autonomy developed in Higher Education is distinctive in its emphasis on subject knowledge. Candy (1988, 1991) addresses in depth epistemological or subject-matter autonomy, which includes making appropriate judgements in relation to the subject matter and being able to use subject-related methods of enquiry and learning. Being an autonomous learner does not simply require technical skills such as being able to search a bibliographic database, prioritise tasks or use various critical thinking techniques:

> *'we do not simply want people who can find resources for themselves, manage their time appropriately or set learning goals, we want learners who know and understand enough to be able to distinguish plausible from implausible knowledge claims or convincing from unconvincing evidence'* (Candy, 1988, p.60).

Graduates are expected to be able to critique and develop knowledge in one or more specific domains, not just think critically in general. Since academic knowledge is not simply a product but also a process, graduates need to be able to participate in that process of renewing, applying and developing knowledge and to continue to learn for themselves. Similarly, information literacy has also been seen as a subject-specific practice (Candy, 2000). Leckie (1996, p.206) suggests that information literacy is only a meaningful capability if it goes hand in hand with subject knowledge and skills: *'a convergence of both information and disciplinary literacy'*.

Subject-matter autonomy has much in common with the type of understanding discussed in relation to approaches to learning research. Candy (1988) and Gow & Kember (1990) regard a deep approach to learning as a precondition for its development. Candy refers to having a well-structured knowledge base, being able to apply knowledge and being able to continue to learn independently. However, whilst understanding is often viewed largely in cognitive or intellectual terms, subject-matter autonomy must necessarily take into account intellectual, moral and emotional or affective dimensions as it is part of an integrated model of autonomy. It suggests more in the way of personal commitment and action than understanding on its own might imply. Subject-matter autonomy occupies the border between the narrower definitions of understanding and critical thinking which concern themselves with academic knowledge and its

immediate application, and the wider concept of the autonomous person who can think and act autonomously. In a sense they are nested concepts, since understanding/critical thinking is a significant part of subject-matter autonomy, whilst subject-matter autonomy is in turn a part of the broader concept of personal autonomy.

Ecclestone (2002) makes a similar distinction between critical thinking and critical autonomy. Critical thinking denotes the application of academic intellectual skills to construct understanding, normally within a highly subject specific context and in relation to formal, propositional knowledge (Barnett, 1997, p. 7). Such critical thinkers may keep their knowledge and understanding sealed off, in a box labelled 'academic'. Critical autonomy, on the other hand, may be demonstrated by a person who has gained a measure of subject-matter autonomy in a domain and who goes beyond merely having a well-developed knowledge structure to bring academic knowledge into a significant relationship with the real world and other aspects of their knowledge and their lives. Ecclestone (2002, p.38) describes this wider focus as: *'being able to see the world in a different way'*. In addition to some kind of integration between the subject knowledge and the world, a different relationship between the knowledge and the learner is implied. We would expect to see a high degree of personal commitment and a sense of ownership of the knowledge and understanding. Critical thinking approaches can be adopted without caring about the subject but subject-matter autonomy requires that the learner sees personal relevance and significance in the subject matter and has a desire to understand further. This may be viewed as bringing together the academic and the personal. A major theme in Baxter Magolda's (1992) developmental model is the making of connections between academic and personal life, where the knowledge and skills gained from subject study become progressively a way of looking at the world and a way of living and making choices.

A high level of subject-matter autonomy is also related to being able and willing to challenge accepted ways of thinking; an *'ability to call into question the pronouncements of experts'* (Brookfield quoted in Candy, 1991, p.61). This requires not merely the intellectual ability to make such a challenge but the willingness and confidence to do so. This is to a large extent dependent on affective issues such as the feelings of control, competence, confidence and a

willingness to take personal responsibility, identified by Morgan & Beaty (1997) as being gradually attained (by some students) over the course of undergraduate study. A willingness to develop one's own view and to challenge others must, however, be balanced by an acceptance that developing and critiquing knowledge in the public domain must be undertaken in conjunction with others. Baxter Magolda (1992, p.188) concludes that *'self-responsibility within community captures the essence of the idea'*. It is not purely an intellectual matter of recognising that knowledge is collectively developed, but has affective dimensions such as being respectful to the views of others and demonstrating a degree of flexibility and willingness to change one's own views.

Subject-matter autonomy also implies being able to stand outside of the immediate context of the subject domain and its ways of thinking and operating. Barnett (1997, p.16) poses the questions:

> *'What do they know of a discipline when all they know of the world is through the perspective of that discipline? How critical is the critical thinking of those 'initiated' into such a world?'.*

He suggests a need to stand outside the discipline, to see it for what it is, critique it and be able to draw upon other ways of thinking and seeing. Baxter Magolda (1992) makes a similar point by emphasising context. She argues that subject knowledge is not simply taken and applied in the world. The wider context of situations must be taken into account, thus modifying the knowledge itself and requiring other types of knowledge and ways of thinking to be brought to bear. She describes this as: *'the necessity of analysing and assessing existing knowledge, weighing the particularities of the context, and developing one's point of view'* (p.188). This broader perspective links most closely to the higher levels of Perry's (1999) developmental scheme, with its strong emphasis on moral and ethical dimensions. Beyond the confines of critical thinking in a subject domain, in the real world the uncertainty of knowledge has to be recognised and dealt with by making commitments and taking responsibility for one's own practical decisions.

With respect to information literacy, a person who has a high level of subject-matter autonomy will clearly be able to use information resources effectively within the subject domain. Candy

(1991) suggests that information access and information skills are important in the development of subject matter autonomy. He considers that 'sorting out' relevant information from a range of complex and potentially relevant resources is a necessary part of being able to learn autonomously. The experience of doing this is qualitatively different from being closely guided by a lecturer or using pre-packaged learning materials. Information resources potentially give access to alternative perspectives, data and opinions which might support learners in questioning the knowledge as presented by their teachers and textbooks. However, in order to learn in this way, learners require some information skills so that they know something about the resources available and how to access them. By accessing different types of literature, students may come to appreciate how knowledge is created and communicated and see the discipline as a living entity, not merely as a body of facts. This should not however be taken to mean that this is the best way to learn in all circumstances. Candy (1988) notes that learners often require assistance and structured teaching and may not be best-served by being forced to work independently. This is particularly likely when learners approach a radically new subject, or when they lack confidence in their own capabilities. Their views of knowledge and learning are also important; a recognition that knowledge is both dynamic and provisional seems to be essential if a learner is to take an autonomous and critical stance towards the subject knowledge. A sensitive use of teaching and learning methods is needed which does not enforce autonomous approaches where they are inappropriate, but encourages progress towards increased autonomy as a valued outcome of higher education.

Even though, logically, it would seem that access to information would be a positive feature in environments designed to promote deep approach to learning (Ramsden, 1992; 1997), little stress has been placed on information use in the approaches to learning research field. Information use has been given more consideration in studies concerned with autonomy. Baxter Magolda (1992) proposes course related factors which help to develop students' views of knowledge and their stance towards it. These include information use which she regards as important, particularly where students are able to undertake project work, and address real world problems or situations. Information access, especially in the electronic information environment, can now more readily provide access to such real world data. Lecturers in a

recent study (McDowell, 2002) placed a high value on the potential this gave for students to practise more authentic ways of learning and creating knowledge in their subjects by mirroring disciplinary research processes. Hall & Dalgleish (1999) reported that students appreciated wider access to current, authentic materials via the Web.

In summary, autonomy in learning is part of an idealistic, perhaps Westernised, construction of the autonomous person. It is closely linked to values defining good learning as associated with the abilities of graduates to learn and think for themselves. Autonomy may be indicated by behaviour but it is essentially a subjective, personal experience which is affected by particular contexts and circumstances. Some learning and teaching methods specifically promote autonomous behaviour, but there are opportunities for the experience of autonomy in any course; for example, where students work on assignments. Subject-matter autonomy is of particular significance since knowledge is at the heart of academic learning. It may be more readily developed where students work with a wide range of information and practice authentic ways of working in the subject. There are therefore grounds for thinking that the practice of information literacy provides an arena within which autonomy in learning may be explored.

2.4 Information literacy

Information literacy appears to be a fundamentally straightforward concept. Many writers refer back to the American Library Association's statement (ALA, 1989) that information literacy is the ability to:

> '*recognise when information is needed and have the ability to locate, evaluate and use effectively the needed information*'.

Most people would find the process as described uncontentious, but there is considerable debate surrounding the concept of information literacy

The term 'literacy' is now widely used, some examples being: IT literacy, media literacy, visual literacy, emotional literacy and consumer literacy. The term conveys a sense of operating with fluency, confidence and competence within the identified domain. In the higher education context, information literacy takes its place amongst other forms of literacy. For example, the

University of Wollongong (2003) has a policy on 'tertiary literacy' which defines the literacies required to operate as a student and needed by graduates. The literacies identified are: academic literacy, information literacy, computer literacy and statistical literacy, alongside professional practice. In some cases academic literacy may be used as the overarching term to encompass a range of literacies, including information literacy. However, the origins of academic literacy, at least in the UK and North America, are in work on study skills, writing support and courses in academic English, hence, although it may be assumed to be an all-encompassing term, in practice it often refers the rather narrower area of academic writing, reading, speaking and listening. Whilst some may view information literacy as a component of academic literacy others claim that it is information literacy which is the over-arching form of literacy basing their argument on the needs of an Information Society and a 'new way of thinking' required by new technologies of information production, storage and access (ERIC, 1994). Whether academic literacy is interpreted in a broad or a narrow sense, and whether it subsumes or is a sub-component of information literacy, there are overlaps between the two terms. For example, writing is always about something. In higher education, it is usually based on acquiring, reading and analysing information, a clear case of information literacy practice. It would be unhelpful to try to draw and maintain watertight boundaries. Information literacy, in common with academic and other related literacies, is a way of viewing learning activities in higher education and beyond. It is particularly valuable in foregrounding the role that information resources of all kinds play in the learning process.

The most fundamental distinction to be made is that between information literacy as a normative process and information literacy as a practice. This distinction is mirrored in versions of academic literacy (Lea & Street, 1998) where study skills and discipline-based academic socialisation approaches are based on views of what students 'ought' to do but there has been a recent interest in addressing academic literacy as experienced by students in practice (Lillis & Turner, 2001). Information literacy as a normative process dominates discussions amongst library and information professionals and increasingly amongst educators. From the early days of its definition as 'abilities to ...' information literacy has been defined as a set of skills or

methods which represent the right way to approach information use and achieve successful outcomes. The concept of an information literate person who displays the requisite abilities stems logically from this. The skills or capabilities defining information literacy are aligned with the desired outcome of an information literate person and they are used as a basis for developing programmes of information literacy education. All three aspects are derived from the information professional or educator perspective. In contrast to these normative definitions, information literacy can be defined as *what people do* as they live through the information-using process (for example, Cheuk, 2000). What people do and how they think and feel about their information-using activities varies considerably in different contexts and between individuals and it may or may not approximate to normative models. It is this learner-centred perspective on information literacy, which builds on a long tradition of research into information behaviour, that is of most interest in this research. Nevertheless it is important to review the models of information literacy proposed by information professionals as they assist in clarifying the concept.

2.4.1 The information professional perspective

Information literacy has its origins in professional practice and research in the field of librarianship and information studies. It stems from a long tradition of bibliographic instruction and library user education which has been particularly strong in educational settings such as university and college libraries. Librarians have for many years believed that it is important that students and researchers learn to make best use of the library and information resources available to them. Standards for information literacy which describe in detail the skills and knowledge that are needed and what methods should be used have been published by national bodies in Higher Education in the USA (Association of College & Research Libraries, 2000), Australia (Council of Australian University Librarians, 2001) and the UK (Standing Conference of National and University Libraries, 1999). These standards show that information literacy is much more than library skills. They cover information use not merely information searching.

The five 'headline' standards in the US version state that the information literate student:

1. determines the nature and extent of information needed.
2. accesses the needed information effectively and efficiently
3. evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system
4. individually, or as a group, uses information effectively to accomplish a specific purpose
5. understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally

Each of these capabilities is then elaborated in the form of between three and seven performance indicators and these are divided further into up to seven outcomes per performance indicator. The Australian standards are based on a revised version of US standards and follow a similar format. The UK standards cover many of the same skills but are less extensive. The development of information literacy in the UK is considered to be somewhat less advanced (Johnston & Webber, 2003; Big Blue project, 2002) although there is great interest in it and a number of local and national projects are underway (Webber & Johnston, 2003).

The growth of professional interest in information literacy has been driven in recent years by the perceived growth in the amount and complexity of information and the need for information users to be able to handle the quantity and diverse quality of information resources now available to them in an electronic information environment. The statement from the Council of Australian University Librarians introducing their information literacy standards (CAUL, 2001, p.2) makes this perspective clear:

> *'Information literacy is required because of proliferating information access and resources. Individuals are faced with diverse, abundant information choices – in their studies, in the workplace, and in their lives. Information is available through community resources, special interest organisations, manufacturers and service providers, media, libraries and the internet. Increasingly, information comes unfiltered. This raises questions about authenticity, validity and reliability ... The uncertain quality and expanding quantity of information also pose large challenges for society.'*

Information professionals have had some success in interesting educators and others in information literacy because the concept appears to fit so well with Information Society

agendas, although the match may not be as close as it seems. The Information Society, with its largely quantitative view of information, may not genuinely support the development of information literacy. Nevertheless, the connection has helped in raising the profile of information literacy through its association with ICT and the general belief that people must learn to use and exploit the new technologies.

The link with ICT can also have disadvantages. Corrall (1998) reviewed a number of lists and definitions of key skills relating to HE and found that, although IT skills were invariably included, 'information handling skills' were rarely explicit. Bruce (1998) studied conceptions of information literacy amongst university staff and reported that some viewed it as being competent with ICT, and only secondarily using ICT for information retrieval and communication. Alongside the possible advantages of the association with ICT, there are risks of information literacy being caught up in implicit values such as the benefits of volume and speed of transfer, the valuing of machine processing over human processing and the general emphasis on efficiency. It may be assumed that saving time by accessing appropriate information quickly and accessing no more than is needed is a benefit. Whilst 'save the time of the reader' is a professional maxim amongst librarians, a more appropriate equivalent in relation to learning might be 'time on task'. If the learner goes straight to the relevant information, reprocesses and represents it, this may be efficient, but little learning may have taken place.

Information literacy is also positively associated with another significant idea in the Information Society, namely the concept of lifelong learning. The Australian government department for education and training commissioned a study of how undergraduate education contributes to the development of lifelong learners. The report (Candy, Crebert & O'Leary,1994) proposed information literacy as one of a set of qualities or attributes which must be possessed by lifelong

learners. It is interesting that the report uses a definition of information literacy which has a different flavour from that developed by information professionals:

- *'Knowledge of major current resources available in at least one field of study*
- *Ability to frame researchable questions in at least one field of study*
- *Ability to locate, evaluate, manage and use information in a range of contexts*
- *Ability to retrieve information using a variety of media*
- *Ability to decode information in a variety of forms: written, statistical, graphs, charts, diagrams and tables*
- *Critical evaluation of information'*

(Candy, Crebert & O'Leary, 1994, p. 43)

This definition is tied much more firmly to specific subject knowledge than the lists of rather generic skills included in information literacy standards. It highlights the need to establish research questions, the ability to interpret information and to undertake critical evaluation. Although it does not extend the concept of information literacy, it places more emphasis on activities associated with learning in Higher Education. Furthermore, information literacy is only one of the proposed qualities of a lifelong learner in the report. The others include: a positive attitude towards learning and a questioning and critical approach to knowledge; a range of learning strategies including reflection and self-management; and a view of oneself as autonomous and capable. A further component, perhaps the most challenging, is termed 'helicopter vision'. This suggests that the lifelong learner should be able to go beyond applying learning skills and critical thinking in one discipline area and adopt a wider perspective, seeing the relationships between different fields and perspectives. The need to be critical of one's own discipline or professional area is raised as:

> '*an awareness of how knowledge is created in at least one field of study, and an understanding of the methodological and substantive limitations of that field*' (ibid, p.43).

All of these relate to ideas of autonomy, critical and relativistic thinking which have already been discussed, reinforcing the idea that information literacy need not be limited to a set of technical skills, but is deeply implicated in matters of learning, understanding and autonomy.

The professional literature of information literacy claims strong associations with active, self-directed or student-centred learning. CAUL standards (2001, p. 3) claim that information literacy '*multiplies the opportunities for self-directed learning*' and can enhance the benefits of '*student centred teaching methods such as problem based learning, evidence based learning, and inquiry learning*'. By stating that such methods have considerable advantages over

'lectures, textbooks and collections of readings' they seem to cast information literacy in opposition to 'conventional' transmission-absorption teaching methods. The US standards refer explicitly to the Boyer Commission Report which recommended enquiry-based learning strategies in Higher Education (Boyer, 1998). Information literacy development might not need to follow major pedagogic change but may in fact lead the way towards more self-directed approaches amongst students in conventional settings. The SCONUL (Standing Conference of National and University Libraries) standards are justified on the basis that they are academic skills which students need for success in any course without linking them to any specific pedagogical method.

There is wider interest in information literacy at present, through its association with ICT and student-centred pedagogies. However, differences in perspective between the two groups of professionals most closely involved, that is library/information professionals and academic educators, persist. Almost twenty years ago, Martin (1985) identified a basic difference between the views of librarians and lecturers. Librarians saw even beginning undergraduate students as requiring encouragement to develop as independent learners and thinkers, using extensive information resources, whilst lecturers tended to emphasise students' needs for close guidance. In the electronic information environment, librarians are still frustrated by what they see as lecturers being too directive; academics frequently experience tensions in trying to balance students' needs for guidance and support on the one hand and their needs for independence and autonomy on the other (McDowell, 2002).

Laurillard's work (1993, 2002) has been influential in thinking about HE pedagogy, especially the appropriate use of learning technologies. She claims (2002) that Web or hypermedia information resources emphasise associative links whereas academic knowledge is not merely associative but structured and complex. How is a novice learner to know what is important or how (conceptually rather than associatively) things link together? Collections of information resources or catalogues rarely represent the conceptual structure of a subject. A textbook or a lecture, on the other hand, tries to help students to link complex ideas together and provide a structure to make sense of the complexity. Her views tend towards close guidance and

direction, especially in relation to electronic information, claiming that learners inexperienced in a subject are not necessarily helped by access to information and learning resources and that lecturers need to: '*reduce the degree of uncertainty for students*'. In particular: '*[Students] need to be protected from the tyranny of choice offered by the Web.*' (2002, p.122). It is not surprising that information professionals have linked information literacy to student-centred pedagogies which shift the balance towards learner control, whilst recognising that, in some settings, the shift may not have advanced very far. Bruce & Candy (2000, p.6) suggest that pedagogic change is needed and that gaining recognition for information literacy in universities requires a cultural change, usually driven by librarians. Since librarians normally have a less powerful voice than academics, this may be a slow process unless circumstances are very favourable.

2.4.2 Information literacy from a learner perspective

Information literacy as a practice viewed from a learner-centred perspective provides a critical counterbalance to normative models, raising questions about how well they represent the right or only approaches to enable information users to achieve their goals. This can also provide a more holistic picture which may be missed when information literacy is considered as atomistic skills or as a de-contextualised process. Like learning, information literacy readily lends itself to a relational approach. Candy (2000, p.149) views information literacy as:

> *'the relationship between an individual and his or her construction (or understanding) of the information task at hand'*.

This could usefully be extended to include not only the construction of the task, but the context within which the task and the learner are located.

There is a long tradition of library and information research into information user behaviour (Wilson & Walsh, 1996) which has increasingly adopted a holistic, if not strictly speaking relational, perspective. In recent research, information user behaviour is set in the context of the user's personal and social world and thus encompasses a wide range of variables such as purpose, confidence and interest, together with contextual factors such as the nature of the task or problem and the purpose associated with the task. There has undoubtedly been more

emphasis on some aspects of information literacy than others in this research. Information seeking and, to some extent information needs (Wilson, 1981), have received more attention than information use. In addition to broader research studies, there have been numerous studies of student information use undertaken in a single university or college (for example, Atkinson & Figueroa, 1997; Dunn, 2002). Some very general outcomes from information behaviour studies are well-known. Information users take a variety of approaches to information seeking which fall short of the approaches recommended by information professionals. This means that they are likely to have difficulties in obtaining the best information to match their needs. However, many users are satisficers who are content with some relevant information, rather than the best information. Their activities are influenced by a range of considerations, which may be seen as inappropriate from a professional point of view. The most obvious of these is that many try to minimise the time and effort that they spend on information-related activities.

Table 2 lists the main research studies that are drawn upon here. Ideally, studies based in educational settings, which address the whole information literacy process and examine variation in students' practice, would be selected. These proved to be scarce, however. Some of the work here addresses only elements of the process. For example, Kuhlthau (1991, 1993, 1997) covers information-seeking and processing but excludes assignment production, whilst Hounsell (1997) address essay writing without covering information seeking and use. A number of the research studies aim to present a single model of information literacy, or aspects of it, although some explicitly address variation in student behaviour. Some of the work makes use of concepts from approaches to learning research but none explicitly refers to autonomy in learning. Few refer to the use of electronic information such as the Web or electronic journals.

Table 2: Brief descriptions of selected learner-centred studies of information literacy

Burdick (1996)	A study of 103 high school students using survey, teacher assessment and student journals. Mainly addressed information seeking, but the teacher's assessment of focus in the assignment submitted was included.
Edwards & Bruce (2003)	Phenomenographic study based on 35 interviews with undergraduate and postgraduate IT students taking a module in information resources. Addressed the experience of Internet searching but did not include assignment production.
Entwistle (1995)	Interview study of essay writing with 12 final year History undergraduates.
Heinstrom (2002)	Questionnaire surveys of student information seeking in relation to a Masters dissertation in several different subject areas. Explicitly linked to approaches to learning and to personality variables.
Hounsell (1997)	Phenomenographic study of essay-writing based on interviews with 17 undergraduates in History.
Kuhlthau (1991, 1993, 1997)	A series of five qualitative studies, including some longitudinal follow up, resulting in the development of a model. Studies mainly involved high school and college students but one encompassed public library users. Concentrated on information seeking processes.
Limberg (1999, 2000)	Phenomenographic study of 25 high school students undertaking a group assignment on a current and controversial topic. Interview-based. Covered the whole information literacy process including the quality of learning outcomes.
Macdonald, Heap & Mason (2001)	Study of the experiences of undergraduate and postgraduate distance learners in resource-based learning courses using electronic information. Conducted through interviews and email discussion.
McGregor (1994)	Qualitative study (including observation, interviews) of high school students in a 'gifted' programme undertaking class assignments. All aspects of information literacy, including assignment production, covered.
Pitts, McGregor & Stripling (1995)	Qualitative study of high school students working in groups to produce a video on an aspect of biology. All aspects of information literacy including assignment production covered.
Prosser & Webb (1994)	Phenomenographic study of essay-writing, also employing systemic linguistic perspectives. 19 First year Sociology students were interviewed and their essays analysed.
Seamans (2002)	Qualitative study of 9 first year college students including interviews, email discussion. Covered information use in general rather than specific assignments. Included electronic information.

The work of Kuhlthau (1991, 1993, 1997) has been particularly influential in information behaviour research in educational settings. She researched student behaviour in US high schools and colleges, starting with a theoretically-based stage model against which actual practice was assessed. Kuhlthau addresses only the information-seeking stage of information literacy, but defines it in terms of making meaning rather than as a purely technical process:

> *' the user's constructive activity of finding meaning from information in order to extend his or her state of knowledge'* (1991, p. 361).

At the heart of Kuhlthau's work is a theoretical model of the information literacy process. This has six stages:

1. Task initiation
2. Topic selection
3. Pre-focus exploration
4. Focus formulation
5. Information collection
6. Search closure

An important contribution of Kuhlthau's work is her attention to affective dimensions of learning. Information literacy, as experienced by students, is characterised by uncertainty leading to feelings such as anxiety, self-doubt and threat and, more positively, satisfaction, at various stages. Emotional responses to the uncertainty in tasks involving information literacy were also noted by Heinstrom (2002). These may be specific examples of issues which have arisen in studies of learning more generally. Candy (1991) comments that in the early stages of learning in a new area, many learners may feel inadequate, lacking in confidence, frustrated, or embarrassed. Similar emotions may accompany starting out on a new academic task. Candy suggests that individuals with a view of themselves as generally successful learners will be better able to nurture themselves through this somewhat threatening process. Heinstrom (2002) found that students who were open to new experiences and ideas were more positive at this stage. Biggs (1999) identifies the explanations which learners make for success and failure in learning as of key importance. Learners who attribute success and failure to ability and assume this to be a more or less fixed characteristic may be less willing to try to overcome any setbacks or difficulties in learning. At the extreme, 'fear of failure' in students who lack

confidence in their own abilities tends to lead to the adoption of surface approaches to learning. On the other hand, students who attribute success at least partially to effort may be more likely to work through difficulties, thus experiencing a degree of success, becoming more engaged in their studies and developing a sense of control and confidence. We may therefore expect to see some of these factors influencing information literacy practice.

A crucial element which Kuhlthau introduced into thinking about information seeking is the idea of focus. Her model proposed that students would engage in exploration at an early stage of their work on an academic assignment. They would begin by seeking and using information on a topic quite broadly, and develop their initial understanding. This would lead to finding a focus. In practice, the activities of many students diverged from the theoretical model. Kuhlthau (1991) maintained that finding a focus (or theme) for the assignment was crucial in increasing student confidence and interest. It also meant that targeted information seeking could take place to define, extend and support the focus and this was likely to lead to a better grade for the assignment. However, only about half of students showed evidence of reaching a focussed perspective on their topic by being able to make a clear statement about it. Only 25% of students undertook the more focussed information searching expected at the later stages of the model. Kuhlthau (1993) later suggested that finding a focus is more often embedded across several stages of the information seeking process rather than being a distinct stage which the student completes and then moves on. She proposed that focus could be seen as a kind of hypothesis guiding the process.

The idea of focus is echoed in work on student learning and autonomy. Hounsell (1997) also uses focus as a key concept in his research on essays. Candy (1991) places particular emphasis on the need for learners to develop anticipatory schemes which enable them to approach learning in a purposive way with expectations, questions or 'intelligent guesses' in mind. Anticipatory frameworks enable them to make much more use of new information to build and change their conceptual structure of the domain. With specific reference to the use of extensive information resources, Laurillard (2002) claims that it is important for learners to have their own narratives in mind, in order to engage in: *'focused, goal-oriented gathering of*

information and ideas' (p.110) rather than merely iterating through materials without reflection.

Again this matches closely with Kuhlthau's perspective:

> *' focus formulation gives the student a strategy for choosing information from an information-rich environment and is the underlying concept in using information rather than merely locating it' (1997, p. 714).*

Focus is widely seen as desirable but is often poorly defined. This may be because focus has both internal and external dimensions and also process and outcome elements, as shown in Table 3. These different dimensions of focus have not always been clearly distinguished.

Table 3: Four dimensions of focus in information literacy

	Internal perspective	**External perspective**
Process	Using anticipatory frameworks, seeking meaning	Narrowing down, targeting
Outcome	Achieving understanding	Coherent presentation

From the internal perspective, focus means having a sense of direction when facing a new topic. This is perhaps related to a general stance towards learning as seeking meaning. Focus as gaining understanding is illustrated by the internal perspective on outcome. From an external perspective, focus is associated with finding a specific topic or angle when faced with an assignment. From schooldays onwards, students are instructed to: 'Narrow down your topic!' 'Keep to the point!'. This is reinforced by exhortations to narrow down information searching and select items specifically relevant to the task in hand. However, from the internal perspective, focus as understanding is not necessarily associated with narrowness; clarity, for example, being somewhat more important. Focus is also observable in assignment outcomes, where it is represented by coherence in an essay or presentation. However this may not necessarily indicate that an internal focus, or understanding, has been achieved. These dimensions of focus have been kept in mind when reviewing previous research here, but lack of clarity in the original work does not always permit distinctions to be made with absolute confidence.

A focus as anticipatory framework suggests that students are looking for meaning and have a qualitative view of knowledge and learning, but it has been demonstrated that this is not the case for all students. Edwards & Bruce (2003) found that some students saw information searching as a process by which they would develop understanding and others saw it merely as acquiring information on a topic. Prosser & Webb (1994) found that all students engaged in a phase of collating information when faced with an essay. Some went on to become more focussed and took a deep approach, viewing an essay as about making meaning and the development of an argument. However, others saw essays as a collection of points or facts and this was considered to indicate a surface or reproductive conception of an essay. Hounsell (1997) also identified students who aimed to gather information about the topic and present it in an ordered way without an overall view or argument. These students were often disappointed by the marks they achieved and were uncertain about assessment requirements. He suggested that the approach was linked to surface approaches to learning.

Where students have a less developed or quantitative view of knowledge they may narrow down the scope of their assignment successfully, but then simply seek to acquire the correct information to re-present. A quantitative perspective was found by Seamans (2002) in students who dealt with conflicting or contradictory ideas by accumulating resources so that they could see where the 'majority view' lay. Limberg (1999, 2000) explicitly related students' approaches to their conceptions of knowledge. Students with a view of knowledge as absolute took a 'fact-finding' approach. They were looking for the right answers or facts and were unable to deal with contradictory information which they found confusing. At the end of the assignment, they knew only a few facts about the issue they had studied and had been unable to form a conclusion.

Other students accumulated a range information in order to cover their topic, including information to answer specific questions. This might be seen, from an external perspective, as evidence of focus. These students reviewed the information obtained in order to choose one side where there were conflicting views and formed an opinion. This need to choose 'one side' suggests that these students were operating at an intermediate level of epistemological development. Students judged by Limberg to be at a higher level of epistemological

development were the ones who developed a good understanding. They set out to understand the topic of their assignment, researched broadly and critically analysed the information they found, trying to form an evidence-based view where there was conflicting information.

Students do not access and use information solely to find something out when they are undertaking an academic task. They are also trying to meet course requirements. The balance between task-centred and learning-centred approaches emerges in a number of studies. Parallels can be drawn with deep and surface approaches to learning, which are respectively linked to seeking understanding and task completion. For example, Seamans (2002) found that some undergraduates were highly task-centred. They tried to find out exactly what they needed to do to complete the course assignment and do just that. Other students started by trying to find out about the topic and spent more time learning about it. Pitts, McGregor & Stripling (1995) showed how students having difficulties with an academic task may use tactics to complete the task that may not lead to new learning or understanding. The balance between learning-centred and task-centred approaches has been linked to motivation and interest. Burdick (1996) categorised high school students as personally involved in the task, expressing interest and enjoyment (learning-centred) or detached, concentrating on completing the task without great personal involvement. Macdonald, Heap & Mason (2001) found that students whose interest was purely in completing their courses were highly task-centred. They also suggested that confidence might play a part; students who were anxious about meeting academic requirements did not attempt to seek understanding through information use, but concentrated on what they perceived was needed to pass the course. Heinstrom (2002) identified two different types of task-centred approach. One group of students took a surface approach to learning and aimed solely to complete the task as easily as possible. Another group took a deep *and* strategic approach to learning. They aimed both to achieve high grades and to understand the topic they were addressing.

There are suggestions that a focus, in the sense of narrowing a topic, which is formed too early can be unproductive, in terms of understanding and producing a good assignment. This may be because some students do not intend to learn about the topic but look for evidence to support

the views and knowledge they already have (McGregor, 1994). Seamans (2002) and Pitts, McGregor & Stripling (1995) reported that some students selected an issue about which they already knew, or narrowed down on the basis that they were able to find some good information on a particular issue. There are also indications that an early focus may lead to closure that is unhelpful because the development of understanding occurs in the process of active engagement with information resources. Entwistle (1995) reported that students who successfully developed an argument in an essay developed this focus through an extended period of engagement with reading. As they read, they organised the information to meet task requirements but also used it to shape the emerging content and focus of the assignment. Edwards & Bruce (2003) found that the search process of students who had an intention to understand was iterative, rather than narrowly focussed from the start.

Questions about when students should narrow down their thinking and whether broad and exploratory approaches to information use are advisable are considered contentious. Burdick (1996) challenges Kuhlthau's view that finding a focus is the key to reducing uncertainty as she found that students' feelings of uncertainty or confidence were not related to focus formulation. Burdick (ibid) and Heinstrom (2002) call into question more fundamentally the idea of focus as an essential component of information seeking and of understanding; that is, focus in its external and internal senses. Burdick (1996) developed categories depicting information literacy practices. Her 'navigators' who produced a focussed assignment, as judged by their teacher, had a narrow, targeted approach to the task. However, whilst most of these students aimed to gain an understanding through use of information resources, a minority did not and aimed only to complete the assignment. Despite this, a focus was apparently evident in their written assignments, pointing to a potential gap between external and internal perspectives on focus. Another category, the 'tourists', continued to gather information more broadly throughout the assignment process. They narrowed their topic to an extent and gained some understanding but did not always attain high marks. Burdick questioned whether the focussed navigator approach should be the only recommended path to success, speculating that the tourists may have employed a different but perhaps equally valuable way of learning which was exploratory and diffuse. However this rather depends on examining the internal perspective

rather than the outward behaviour. Students categorised as tourists who were personally involved and interested in what they were doing felt satisfied and successful in their learning. However, tourists who were detached or disengaged were likely to be using this unfocussed approach as a task-completion strategy without aiming to gain understanding.

Heinstrom's (2002) study of information seeking by Masters degree students undertaking dissertations raises similar questions. She identified two groups called 'deep divers' and 'broad scanners'. Deep divers undertook planned, systematic information searching and aimed to find high quality academic or scientific information pertinent to their needs. Quality in the sense of authoritative information was more important to them than quantity and they used the materials they found in some depth. They had an intrinsic intellectual interest in the subjects and their approach to study was found to be deep and strategic. They aimed to achieve good marks and were in general successful. Interestingly, this categorisation links narrowing down with a task orientation, but in tandem with a learning orientation. Broad scanners spent considerable time and effort on searching and looked broadly. They welcomed new and challenging ideas and used critical thinking approaches with some confidence to develop their views. Their searches were not rigorously planned and tended to continue through all stages of dissertation work. They often found information 'by chance'. All had an intrinsic interest in what they were studying but their interests could be quite broad and addressed in a divergent way. There are certainly echoes here of Burdick's tourists, with their exploratory and diffuse approaches. Broad scanners, like the tourists, did not necessarily receive high grades. Heinstrom suggests that perhaps they were active in acquiring and exploring information but did not analyse it appropriately for presentation.

Hounsell (1997), studied History students and essay-writing. Although he did not explicitly consider the information seeking element, similar conclusions emerged. Some students produced a coherent essay, presenting an argument based on evidence. When reading for the essay, students looked specifically for arguments being made and sought supporting or disconfirming data. Hounsell suggested that they demonstrated deep approaches to learning, although the approach as he describes it appears to be deep and strategic. Other students

produced essays which were coherent, being based on a particular viewpoint which they had developed, but this was not well supported by evidence. Hounsell suggests that they may have based their essays on a pre-determined personal view and been selective in their use of evidence, ignoring rather than exploring inconsistencies. However, the work of Burdick and Heinstrom offers an alternative possibility: the students did use a broad range of information but did not bring it together in a way which was academically acceptable. Either explanation would be consistent with Hounsell's observation that these students valued originality and self-expression and did not use the conventional academic approach to essay writing.

It is tempting to connect a broad approach with the idea of a student who is personally engaged and following his or her own interests, and highly focussed approaches with a task orientation. Burdick, Heinstrom and Hounsell identify a high level of personal engagement associated with a broad approach to information seeking and use. Burdick felt that students who narrowed down their topic and their information use, and those who looked widely, could be successful and she attempted to link this to connected and separate ways of learning and understanding (Belenky et al, 1986). Separate approaches are more akin to conventional academic approaches where the learner remains detached, aiming for an objective view based on data and rules of evidence, whilst students adopting connected approaches make use of subjectivity and their own and others' personal experiences in developing understanding. Baxter Magolda (1992) suggests that both separation and connection are needed at the highest levels of epistemological development. This may provide support for the value in information literacy practice of incorporating both exploratory and targeted activities. Nevertheless, there is something of a leap to be made between broad information seeking and such profound epistemological distinctions. A student looking broadly might be seeking personal, connected understanding or might simply be adopting, without reflection, an obvious and straightforward way of completing an assigned task. Similarly, a highly focussed approach may indicate wholehearted adoption of a particular academic way of gaining understanding which is somewhat detached, or an instrumental 'going through the motions'. This provides further indication of the need to consider both internal and external perspectives on information literacy.

In summary, the overall picture from these studies is that understanding information literacy requires a situated view which takes into account individuals, context, task, and subject matter. Both cognitive and affective dimensions of thought and behaviour are equally relevant. The fact that the same threads emerge in relation to different components of information literacy, such as information-seeking and essay-writing, suggests that the practice can usefully be viewed as a connected whole. Variations in information literacy practice are evident. Research into these variations can help to develop understanding and perhaps ultimately improve the support offered to students, as long as this is not a matter of discovering deviations from an ideal model but genuinely addresses why, how and in what circumstances such variations arise. The concept of focus has emerged as important and it provides a connection between information literacy practice and subject-matter autonomy. Four versions of focus have been identified on the basis of two dimensions: internal/external and process/outcome. There are significant questions surrounding the place and timing of focus within an information literacy process. The relationships of focus to approaches to learning, conceptions of knowledge including separate and connected approaches to knowledge, and task or learning orientations are also areas for further investigation. To a significant extent, studies of information literacy practice have emphasised externally-observable activities. A consideration of the internal perspectives on information literacy practice reveal the limitations of this, indicating ways in which practices are inextricably connected to students' purposes, understandings and sense of themselves as learners.

2.5 Conceptual framework: a synthesis

The implications of the conceptual framework, derived from approaches to learning research and learner-centred work in relation to autonomy and information literacy, can now be formulated. The intention is to use this framework to provide conceptual clarity in the research study rather than to develop it into a model which can be tested by empirical research. The conceptual framework provides a guide to the design of the study and to the interpretation of outcomes but must not become a yardstick or a straitjacket. The review of previous work demonstrates many connections between student learning, information literacy and autonomy

viewed from a learner-centred perspective. It indicates that it is useful to view information literacy practice as a coherent process, embedded within a wider process of learning. Its component parts, such as information seeking, learning and presenting outcomes, are logically and empirically linked. The process is permeated by factors such as approaches to learning, conceptions of knowledge, the development of understanding and autonomy in learning. These provide a strong conceptual framework within which to further our understanding of information literacy.

Information literacy is clearly an important aspect of academic learning. As Hounsell (1997) points out, engagement in private study or independent learning using information or learning resources occupies a very substantial amount of university students' time and energy and, presumably, makes a very large contribution to learning outcomes. Examining information literacy can illuminate some of what goes on in that time and existing research shows how information literacy practice is connected to learning in complex ways. The importance of information literacy is, arguably, heightened in the current electronic information environment where information is abundant and accessible to students. Whilst aware of the need to avoid simple technological determinism, it is hard to completely dismiss the perception that students can now do new things in new ways. Whether this represents a qualitative disjunction in ways of learning, or is merely a new set of circumstances within which many of the old features and relationships continue, is open to debate.

Information literacy has, to date, more often been addressed from an external perspective than from a learner perspective. There is increasing recognition that information literacy practice is not merely an application of technical skills, nor purely a cognitive matter; affective factors such as confidence and attitudes to uncertainty play an important part, as does the context within which information literacy is being practised. Researchers working in the field have identified the need for further work from a learner perspective. Heinstrom (2002, p.259) concluded her doctoral thesis by advising that interview-based research, which could really illuminate the student perspective and which should include information literacy in its broad sense, was required. Bruce & Candy (2000) identified several areas where more research in information

literacy is needed including: differing concepts of information; knowledge and information literacy; the information literacy experiences of individuals and groups; and motivations for information literacy. Sayed (2000, p.254) suggested that in the educational context:

> *' there is also a strong need to focus on what happens in courses and programs that promote information literacy ... the need for rich, nuanced and textured investigations is vital'.*

External perspectives draw on normative professional models or on studies of information behaviour based largely on observable activities. There has been an emphasis on information-using processes rather than the meanings of information literacy practice for learners. This has led to dilemmas in interpretation, perhaps most significantly in relation to the concept of focus and the significance on the one hand of highly-focussed approaches to information literacy practice and, on the other hand, broad and divergent approaches. Furthermore, it has often been assumed that learners will or should act autonomously and that, given opportunity, will do so. There is an implication in some information literacy research that the more successful students were observed to act autonomously but students' varying experiences of autonomy have not been explicitly addressed in this context.

Experiences of information literacy will be further illuminated in this study by considering them in relation to subject-matter autonomy. Key dimensions of subject-matter autonomy and their connections to information literacy are summarised here, drawing upon the work of a number of authors (Baxter Magolda, 1992; Candy, 1991; Ecclestone, 2002; Morgan & Beaty, 1997):

- Control – in general terms this is indicated by the student perceiving that they have some freedom to act and make choices and that they have the capacity to act in a effective way. The student feels able to handle subject knowledge by constructing meaning from information.
- Confidence – the student has confidence in themselves and their abilities to cope. This enables them to manage their own learning and to cope with the uncertainties of their information literacy practice. In relation to subject knowledge they can draw conclusions, evaluate and even challenge received knowledge.

- Ownership – this refers to the sense of wanting to learn in contrast to a perception of having to learn in order to meet external demands. Ownership of knowledge suggests that it is meaningful and significant to the person themselves and that they have a sense of commitment to their learning, the subject and the subject community.
- Responsibility – the student is able and willing to take responsibility for their decisions, successes and mistakes in relation to learning and information literacy practice. Furthermore, they accept the need to act responsibly with respect to the information they use, their constructions of knowledge and the ways in which subject knowledge is used; for example, in 'real world' contexts'

These dimensions are clearly relevant to information literacy practice. Control and responsibility are linked to procedural autonomy or the ability to manage one's own learning in the subject context. They also have strong connections with external perspectives on focus; that is, narrowing down a topic and producing a coherent presentation. Confidence, ownership and responsibility are central to internal information literacy perspectives, such as seeking and achieving understanding, and to the personal and critical dimensions of subject-matter autonomy. In the information literacy research that has been reviewed here, autonomy is scarcely mentioned explicitly and almost never used as a key concept. However, findings from the research studies are implicitly infused with the significance of autonomy in learning. The contribution of this study will be: to view information literacy practice from a learner perspective; to set it within the broader context of learning; and, most importantly, to illuminate connections between information literacy and autonomy in learning.

Chapter 3

Experiencing phenomenography

3.1 Starting points

The research question:

> In what ways is the practice of information literacy experienced by undergraduate students in the contemporary information environment?
>
> In what ways does student autonomy relate to information literacy?

Researchers are often advised to start with a research question. Research proposals, including the one which was submitted for approval at the start of this research, are judged quite substantially on the basis of the appropriateness of the research question and the design of the research study in order to answer it. Formulating a research question within a general area of interest is widely acknowledged to be difficult. However, there is much that pre-dates the appearance of a research question, or even the declaration of an area of interest. In a practice-based field such as education this naturally includes the professional and personal interests of the intending researcher but, in every enquiry, the context which generates the research question also includes the individual's methodological stance, implicit or explicit, and the values that they bring to the area of study. I have addressed the development of my substantive interests in the introductory chapter and in this section deal with the methodological origins of the research.

Anyone with knowledge of the field would see that the very nature of my research question presupposed that it would be answered using a phenomenographic approach. Interestingly, someone who did not have this awareness suggested that I 'simplified' the question. Why not, he said, just say 'How is information literacy practised by undergraduate students ...' ? However, for me, that would not have done at all. When I began to consider this study I was already experienced in phenomenographic research, or at least research oriented towards or

influenced by phenomenography (Sambell, McDowell & Brown, 1997; Sambell & McDowell, 1998). The lack of absolute certainly as to whether I had been doing phenomenographic research, or had only been influenced by it, stems from a widespread lack of clarity about what phenomenography really is. Richardson (1999, p. 53) claims that it is:

> *'bedevilled by a lack of specificity and explicitness concerning both the methods for the collection and analysis of data and the conceptual underpinning of those methods'.*

Addressing the conceptual matters first, there are some basic features of phenomenography on which there is general agreement. The most significant of these is the concept of 'experience'. Phenomenography is about:

> *'the ways of experiencing different phenomena, ways of seeing them, knowing about them, having skills related to them'* (Marton & Booth, 1997, p. 117).

Experience is defined as the relationship between the individual and the world or some aspect of the world and represents a non-dualistic ontology. This does not deny that there *is* a real world with physical objects and people in it, but that to experience the world requires interpretation and that stems from the individual who, in effect, creates his or her own world. This locates phenomenography within an interpretivist paradigm and, more specifically, according to Guba & Lincoln, (1998, p. 206) sharing an ontology where:

> *'Realities are apprehendable in the form of multiple, intangible mental constructions, socially and experientially based, local and specific in nature'.*

This perspective reflects the way that I tend to view people and situations in daily life. When wondering why students or colleagues behave as they do, I would always tend to think first about their perceptions and understandings of the situation as a source of explanation. Many people do not think that way and this is illustrated by the type of exchange which arose on a number of occasions in various workshops and seminars for academic staff when I presented

research based on students' experiences of assessment. The discussion went something like:

> **Liz:** (Illustrating the student experience by showing a direct quotation from an interview on the screen). *This is fairly typical:*
> *"For an essay, if you go to the library, get a few books and put it in your own words, you'll do OK"*
> **Academic** (interrupting) : *Excuse me, but I have to say you've got that completely wrong, that's not what's needed for an essay*
> **Liz:** *OK, I wasn't saying that's what I thought an essay was, this is what a student, a fairly typical one in the study, actually said*
> **Academic:** *Well,* ***they're*** *wrong then*
> **Liz:** *They might not be doing an essay the way you want them to, but if that's what they think is needed then that's going to influence what they actually do, when you give them an essay*
> **Academic:** *Actually that doesn't happen here because we give them very explicit guidelines, clear assessment criteria and so forth*

Being centred on experience, phenomenography shares with other interpretive methodologies an epistemological approach which uses a second-order perspective, that is:

> *'the experience-as-described, rather than on either the psychological processes generating the experience or the 'objective facts' themselves'*
> (Ashworth & Lucas, 1998, p. 415).

The data on which phenomenography is based are descriptions of experience taking the 'inside view'. Of course from some points of view this is not valid data at all, merely 'what somebody says'. An example of this from my workshop experience, would be the academic who says something like:

> **Academic:** *I find what you've said about essays really fascinating and it seems to tie in with what I've noticed. Is there any research evidence that backs this up?*

This comment, received after a careful introduction to the research base of the work and the nature of the evidence which might be useful in understanding and improving assessment of learning, was somewhat frustrating at the time, but here it merely illustrates views from different paradigms. In addition to determining the nature of evidence which is acceptable, the value which phenomenography places on experience rather than the psychological or social processes which may be deemed to determine the nature of experience has another corollary. In methodological terms it starts from experience and does not attempt to apply existing formal or substantive theories to the research study. In this it shares many of the aims and assumptions of grounded theory (Glaser & Strauss, 1967). Richardson (1999) notes that many phenomenographic researchers use the techniques of grounded theory in data analysis and

claims that phenomenography and grounded theory share the same view on how theoretical understanding can be derived from interview data.

An aspect of methodology which is specific to phenomenography is the representation of experience in terms of a limited number of mutually exclusive categories. The methodology deals with the problem of the infinite variety of individual experiences by devising categories which represent the critical differences in the collective experience of some phenomenon and these are generally few in number; for example, five conceptions of university teaching experienced by academics (Prosser & Trigwell, 1999). Categories of experiences are developed by, in effect, pooling the data from individuals. This means that the data is largely stripped of any connections to personal life histories or individual circumstances but, since phenomenography does not use these as explanatory variables, this does not cause a problem. It is, however, a source of criticism from those taking other methodological views and a source of confusion for those unfamiliar with the approach. To return again to workshop attenders, a very common question is: '*How many students were in each category?*'. Looked at in one way, this question misses the point but in fact phenomenographic studies do often categorise individuals. If, for example, there is a wish to demonstrate how approaches to learning are connected to study success in terms of marks, then individuals have to be categorised as taking either deep or surface approaches so that the necessary correlations can be made. What happens is that categories are derived from the whole data set, then applied back to individuals.

Other fundamental criticisms of the nature of categories have also been made. Ashworth & Lucas (1998) criticise them on the basis that they pre-determine what kind of outcome is desired, rather than being truly grounded in the experience of research participants and attempting to represent their experiences in the most appropriate way. Ashworth, Bannister & Thorne (1997), in a study of students' experiences of cheating, preferred to use 'themes', claiming that they were '*broader and more tolerant of diversity than categories of description*' (p.14). Richardson (1999) criticises the development of categories on the basis that the approach, as demonstrated in the work of Marton, is imbued with realist assumptions that the

categories are there waiting to be discovered by rigorous research. There are grounds for this concern. Consider for example this statement by Marton & Booth (1997, p.117):

'Phenomenography is focussed on the ways of experiencing different phenomena'.

Phenomenography here is not just about 'ways' of experiencing but '*the* ways' which implies the existence of a definitive set of ways. This implication is further supported by the number of phenomenographic studies which have explicitly or implicitly set out to verify the existence of existing categories, especially those associated with approaches to learning (Haggis, 2003).

However, Richardson (1999) is happy to accept the idea of categories so long as they are viewed as interpretations or constructions derived from the data, rather than representing some discovered 'truth' (Guba & Lincoln,1998). Haggis claims that because the categories derived from phenomenographic research in higher education have been treated by practitioners, and many researchers, as 'true', their status as interpretations has not received sufficient critical attention. She suggests that approaches to learning could be regarded *as 'an articulation of the aims and values of higher education'* (p. 97), as held by the academic community. In essence she is raising the criticism that Schwandt (1998, p. 247) notes as often levelled at interpretive or constructivist approaches; namely that they do not sufficiently challenge the status quo.

In support of categories, I would argue that the problem of infinite variety of experiences has to be dealt with in one way or another. There is a real tension in taking and using an individuals' words out of the context of their whole experience. In conducting this study I experienced my own emotional resistance to doing this at times, as it seemed somehow to be denying the value and individuality of the person. However, I did not believe that understanding would be furthered without some re-working of the data to communicate something that I believed to be meaningful. At least phenomenographic categories offer the opportunity to avoid rigid labelling of individuals by allocating them to fixed groups. They allow individuals to be more complex and changeable whilst the categories render their experiences intelligible. Categories are quite complex constructs and are somewhat far removed from the 'realities' of the data. However, the only alternative on offer seems to be the use of 'themes' or 'issues'. It would have been easy to produce lists of themes in my own research: interest in the subject, confidence, information skills, role of other students, and so on. However, categories have coherence, which I believe

helps the understanding of those who might want to learn from research outcomes much more than the provision of such lists. My own adherence to phenomenography and its categories stems ultimately from a conviction of its usefulness. A key professional value for me is the aim to improve learning and teaching. I first came across phenomenographic categories as a 'consumer'. I read a book by Entwistle and Ramsden (1983) in the mid 1980s and it transformed my thinking about learning and led to a change both in my research and my educational practice. I was far from alone in this. Richardson (1999, p. 72), despite his many criticisms, is clear that phenomenography has:

> *'revolutionised the way in which both researchers and teachers think about the process and outcomes of learning in higher education'.*

3.2 The Research Study

The empirical study was designed to enable me to obtain interview data from students about the practice of information literacy, alongside contextual information to enrich the interpretations that could be made. The main stages are shown in Table 4.

Table 4: Timetable of research activities

May-Oct 2002	**Stage 1: Locate suitable research sites and negotiate access** - obtain lecturer contacts and make initial request by email - follow up by email and telephone with those responding positively and negotiate interview dates - interviews with 15 academics - secure agreement with two academics to proceed with the research
Oct 2002 – June 2003	**Stage 2: Gather data from students and lecturers in the research sites** - negotiate research processes and procedures and secure necessary agreements - recruit and interview student participants - interview staff (lecturers and librarians) - observe class sessions - gather and review of documentary sources - initial analysis and interpretation of data and interim reports
Oct 2002 – Jan 2003	Stage 2 activities at Birnham University
Jan 2003 – June 2003	Stage 2 activities at University of Arden
March 2003 – Oct 2003	**Stage 3 Data analysis and interpretation**

3.2.1 Stage 1 Location of suitable research sites and negotiating access

I needed access to courses where I could investigate students practising information literacy and this meant courses or modules where they were expected to make substantial independent use of information sources, including electronic resources. Although this is not an uncommon feature of university courses, in practical terms it was not an easy task to locate lecturers who had this kind of expectation for their students and to persuade them to volunteer to talk to me about it. For pragmatic reasons, I chose to limit my search to four universities: two post-1992 universities and two old universities, which were reasonably convenient for me to visit and where I had contacts who I hoped would help me to get in touch with lecturers. These contacts were liaison librarians who provide professional subject-related support to lecturers, and staff in learning technology services. In one of the universities no contacts were forthcoming even though they were promised on a number of occasions. My interviewees therefore came from Greenwood University, Birnham University and the University of Arden. The universities, the lecturers and subsequently the students and other staff are identified here by pseudonyms to preserve anonymity and confidentiality.

At Greenwood University I made contact with a number of lecturers identified through their participation as presenters in a university teaching and learning conference. At Birnham University, I was supplied with lists of names and email addresses so that I could contact lecturers directly. At the University of Arden, I was supplied with a small number of direct contacts by the liaison librarians and the Learning Technology Service emailed their contacts list on my behalf. An example email is in Appendix 1. Some of the lecturers identified were known to liaison librarians, usually because they arranged library input into their courses to help students with information skills. Others were known to learning technology staff because of their interest in using the virtual learning environments, such as WebCT or Blackboard which were being introduced into the universities at this time. Some were presenting their innovations in learning and teaching at a university internal conference. It is likely that the contacts and the eventual interviewees were more interested in teaching and in developing their teaching than some of their colleagues.

In total 28 lecturers responded positively, but it did not prove possible to interview all of them for practical reasons and in any case such a large number was not required. I interviewed 15 lecturers, all of those that it was possible to arrange to meet between mid-June and mid-July. This proved sufficient to open up a number of possible research sites. Seven interviewees were from Science/Technology, six from Social Science and two from Humanities. The interview schedule is included in Appendix 2. The main purpose of the interviews within this research was to identify potential research sites. The data was used to check the characteristics of courses and the expectations of lecturers with regard to student information literacy. Interviews were recorded, which permitted further in-depth analysis, but this is not reported here.

The selection of potential research sites was made after reviewing the interview data. I aimed to locate two sites in which to conduct the research. All interviewees had said that they were willing to consider facilitating further research. To make the selection, I used a systematic approach, rating each setting on the basis of five criteria. Settings which scored highly on these criteria would give me good opportunities to observe the practice of information literacy in which I was interested. This is shown in Appendix 3. I then considered the university and subject area, since I wanted to select sites from two different universities and subjects to maximise variation within the confines of a small study. At the beginning of the 2002/03 academic year, I contacted six lecturers, two at each university, to ask them if they would allow me to undertake a full research study in their setting. The responses are shown below. I then had detailed discussions with Professor Cedar and Dr Elder about what would be involved and agreed practical arrangements.

Table 5: Lecturer responses to participation in the research

Contacts	Outcome
Birnham University	
Professor Cedar, Biology	Immediate positive response and this formed the Semester 1 case study
Dr Hawthorn, Environmental Science	Delayed reply. Dr Hawthorn expressed a willingness to discuss further but I had already selected the two sites.
University of Arden	
Dr Elder, Anthropology	Immediate positive response and this formed the Semester 2 case study
Dr Sycamore, Theology	No reply
Greenwood University	
Mr Hazel, Economics	On long term sick leave.
Dr Whitebeam, Psychology	Delayed reply. Dr Whitebeam was unsure but agreed to discuss further if I had a problem locating suitable sites. This proved not to be the case.

3.2.2 Stage 2: Main research study

Research Site 1, Semester 1, 2002/03: Professor Cedar, Biology, Bimham University

Birnham University is an 'old' university with a strong reputation for teaching and research. The Biology department is considered to be a good one. The subject received a 5* rating in the 2001 RAE and in the Subject Review both relevant subject areas received 22/24 scores. (Organismal Biosciences and Agriculture). The average A level degree offer is BBC for the Biology degree and CCC for Environmental Biology[1].

Professor Cedar said that he expected students to use a range of information resources in modules that he taught, not just one or two textbooks. For some assignments they would be expected to find appropriate material for themselves though he recognised that their use of information resources was not as extensive as it might be for students in some humanities and social science subjects. He expected students to be able to use electronic resources, especially bibliographic databases. He taught a module on information and data-handling to all of the first year students. He expected students to use the Web to access scientific data sets

[1] UCAS web site, 18/10/03

and information about plants, animals and other organisms including illustrations, photographs and other visual data. Professor Cedar believed that many science subjects, including some in the biology degree courses in his university, were taught in what he viewed as a restrictive way with material 'given' to students and churned out in the exam. He placed a high value on his students being able to think through problems, form hypotheses, gather evidence and come up with answers, right from the first year. He was enthusiastic about teaching and he said that he was often impressed by what some students achieved, though the performance and engagement with the course varied between individuals.

Professor Cedar phoned me almost as soon as he received my email, asking if I could conduct the next phase of my research with his students. He said that he would be pleased to help further. He had been interested in the topics we had talked about in the interview before the summer and also he was planning to try out a new approach in his Semester 1 Plant Physiology module for the second year students. He planned to reduce the number of lectures and ask the students to do more resource-based learning, some of it without detailed guidance on what information materials to use. There were 47 students (17 male, 30 female) from two different Biology degrees taking the module. We agreed that I could be introduced to the student group at a practical class and that subsequently he would pass on an email (Appendix 4) from me, asking for volunteers for interviews, to all of the students taking the module. He also secured the agreement of the Head of Department for the research to take place and we drew up an email to inform all academic staff of the research (Appendix 5).

I attended the whole of a practical laboratory class in the third week of the semester. I chatted informally to as many students as possible and told them what I was doing. Most of the time they were working individually or in small groups on an experimental task. At some points, Professor Cedar spoke to the whole group to give some instructions and information. In one of these I was allowed a few minutes to introduce myself to them, explain what I was doing and tell them that I would be asking for volunteers for interviews. Four students volunteered during the practical class. Later in the week Professor Cedar circulated an email on my behalf to all students taking the module. This resulted in another five students volunteering to participate.

My final sample consisted of three of the original volunteers (the fourth failed to reply to my emails) and the five who responded to the general email. The Biology students have been given a pseudonym starting with the letter 'B' for ease of identification. Five of them were Biology degree students: Brian, Becky, Brendan, Bridget and Bethany. Three were students on the Environmental Biology degree: Beatrice, Briony and Bernadette. All were traditional HE students, in that they had come into the university straight from school as A level entrants. Only one was a local student living at home with his parents; the rest had moved away from home to attend university.

Professor Cedar was enthusiastic and supportive of the research throughout. However, when I attended the practical class he was worried and asked to speak to me at the end. This was week 3 of the module and he had already had to modify his planned teaching approach. Students were very unhappy with the idea that they had to decide for themselves what to read in the module, even though in some instances this just required them to find the relevant section in the course text. They were used to being given explicit page references to reading matter to support each lecture or practical. There were also complaints about being asked to read a research article. Most had not read research articles before. Professor Cedar seemed to have negotiated a compromise with the students and was still asking them to be a little more independent in selecting what to read and he still intended to require reading of one or two more research articles in the module. However, he was worried that there would not be enough for me to study for my research. He explained that all of the students were also studying one of two scientific communications modules during the semester. Which of the two modules they took depended on whether they were on the Biology or Environmental Biology degree. In fact, the work students did on these modules became the main focus for the research interviews. Details about the assignments are in Appendices 6 and 7.

The data sources used are listed in Appendix 8. Most of the research data came from the student interviews. Interview schedules are in Appendices 9 -11. I also interviewed four staff members: Professor Cedar; Dr Pine and Dr Willow, who were module leaders for the scientific communications modules; and Mrs Rowan, who was the liaison librarian for Biology. These interviews were used to provide context for student data rather than as a source of data for

detailed analysis. I had intended to undertake informal observation at one of Professor Cedar's lectures and another practical class but my own work commitments prevented this. I felt that it would have been helpful in providing more contextual understanding to situate what the students were telling me and I ensured in the second research site that I was able to undertake some class observation. I was able to obtain relevant documents, such as the module guides, student course handbook and assignment briefing materials for the scientific communications modules. I contacted students when they had received their module results and asked them to give me their marks; most gave me the information I asked for (see Appendices 12 and 13).

Research Site 2, Semester 2, 2002/03: Dr Elder, Anthropology/Area Studies, University of Arden

The University of Arden is an 'old' university with a strong reputation for teaching and research. The module which Dr Elder teaches to final year undergraduates is offered jointly in the Anthropology and Area Studies[2] departments. Ratings in the 2001 RAE were 5 in Anthropology and 4 in Area Studies. In Subject Review, Anthropology was rated as 'excellent'[3] and Area Studies received a score of 22/24. The average A level degree offer is ABB in Anthropology and BBC in Area Studies.

In the initial interview with Dr Elder she said that she hoped I would include her Anthropology module in Anthropology/Area Studies in my research. She was already involved in several teaching-related projects, including a national project funded by HEFCE's Fund for the Development of Teaching and Learning. She had made considerable efforts to help students to use a wide range of resources on her course, using WebCT as a way to direct them to print and electronic materials, as well as to gateway sites and databases which would permit them to do further searching for other materials and resources. She considered that this was important not only to enable them to produce good essays, but also to stimulate their interest and curiosity. Whilst students needed to use academic texts and articles, they also benefited from using

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[2] Not the real title of the department.
[3] The excellent rating was obtained in 1994 before numerical scores were introduced.

primary data about particular regions or communities, maps, photographs and other visual materials illustrating aspects of material culture. Non-academic accounts, sometimes produced by the communities themselves, were also useful. Dr Elder tried to help students to become effective information users through the structure of her WebCT site and through guidance materials that she made available or worked through with students in seminar sessions. Critical thinking and independent thought were important to her and she said she liked to see something in students' essays which was surprising or original. She was pleased when they showed that they had used a wide and diverse range of information and she hoped that students, by the final year, would have identified and be pursuing their own interests.

I visited Dr Elder's seminar class in the AAS module in October 2002, enabling me to meet the students early on and get their outline agreement for the research to take place. It was a small group; only 14 students (10 female; 4 male) were taking the module. I observed the class, introduced myself to the students and explained what I was doing. In discussion, students asked a number of questions and all said that they had no objection to the research. After this, Dr Elder obtained formal permission from the Head of Department for the research study. I visited the class again in January 2003 when I was ready to start the research and sat in on the seminar again. I was able to speak to those present and seven students volunteered to take part in the research. Afterwards I sent out an email to all 14 students (Appendix 14) via the WebCT site to which I had been given access. Another two students volunteered to be interviewed. I had nine student volunteers, but two failed to respond to requests to arrange an interview and the final sample consisted of seven students. They were doing a range of single, joint or combined degrees, including subjects such as Area Studies, Anthropology, Politics, History, Language Studies and some other social science subjects. I have called them combined Social Science students and given them names beginning with the letter 'S'. The student interviewees were: Sophie, Selena, Sadiyya, Stuart, Salim, Shahira and Sean. The names I have given them, which are similar to their real names, might suggest that some were international students. This is not the case as all of them had British nationality. All had been educated in Britain for most of their schooling, although some had lived abroad with their families for parts of their childhood and adolescence. English was the first language for all the

students, but several were competent in one or more other languages. They were traditional students in the sense that they had entered university with A levels straight from school, in some cases following a gap year. One was married and lived locally, commuting from her own home. Students were interviewed twice. The email arranging the first interview is in Appendix 15.

The data sources used are listed in Appendix 16. Most of the research data came from the student interviews. Interviews concentrated on the AAS module and the dissertation although with reference to other modules. The interview schedules are in Appendices 17 and 18. I also interviewed four lecturers: Dr Elder; and three from the Area Studies Department. These were: Professor Oak who ran one seminar in Dr Elder's module and asked to be interviewed when he was informed of the research; Dr Yew, Head of Department; and Dr Ash, Director of Undergraduate Programmes with responsibility for dissertations. I attempted to arrange an interview with the Director of Undergraduate Programmes in Anthropology who had responsibility for dissertations there, but this did not prove to be possible. I also interviewed the liaison librarians with responsibilities for Area Studies and Anthropology. I attended several course sessions as an observer, in order to obtain more contextual data and a better understanding of the work students were doing, and gathered course documentation, including guidelines for essays and dissertations (see Appendices 19 and 20). I obtained written permission from the students which enabled me to obtain their AAS module mark and degree result from the department administrator (see Appendices 21 and 22).

3.3 Critical review of the conduct of the study

3.3.1 Participation and representativeness

Securing participation in the interviews was not as problematic as I feared it might be. I had been involved in a number of projects in the past where securing student co-operation had caused difficulties (McDowell, Marples & Banwell, 2002). I took several approaches to secure participation. Firstly, I worked through a lecturer who encouraged students to participate. Both

Professor Cedar and Dr Elder were enthusiastic about the research and, perhaps relatedly, they were also enthusiastic teachers who had positive relationships with their classes. I met the students face-to-face before asking, via email, for volunteers to be interviewed. I also offered a small payment of £20 for participation. I feel that this may have had an effect on volunteering initially, but by the time of the second interview a number of the students seemed to have forgotten that they were due to be paid! My initial contacts with students were all by email but I asked for other contact details if students were happy to provide them. Most gave me their mobile phone numbers but preferred to mainly use email. The mobile phone numbers proved useful on occasion. For example, when Briony did not appear for her interview, I was able to phone her. She had forgotten the appointment but we were able to quickly re-arrange it for the next day. I also sent a text message to Biology students who did not reply to my email asking about their marks and this resulted in another response. Across the two settings, only one student was not able to participate in the second interview.

It is often suggested that student volunteers, or volunteers from any group, are not 'typical', being generally more interested and active than the rest of the group and perhaps more positive or, on the other hand, more negative and wanting to voice complaints. It is difficult to claim that my interviewees were 'typical'. However, they were not all high achievers, as the marks they obtained show (see Appendices 13 and 22). Some were very enthusiastic about their course; others much less so. There was a mix of male and female interviewees. In Biology, about a third of the students taking the plant physiology module were male but only a quarter of my eight interviewees were male. In combined Social Science, males were over-represented since three of the four males in the AAS module participated and only four of the ten female students. I also noted when I attended classes that most of my interviewees were present most of the time, although there was never full attendance by all 14 students on the module. Although it is reasonable to ask how typical the students were, it is actually more important in this kind of study that the sample of interviewees is sufficient to identify a range of experiences to permit the study of variation. The outcomes of the data analysis and interpretation show that this was the case.

3.3.2 Data analysis

Data analysis began as soon as interviews were complete. In fact, it could be argued that data analysis began *during* the interviews when:

> *'the interviewer, during the interview, condenses and interprets the meaning of what the interviewee describes, and "sends" the meaning back'* (Kvale, 1996, p. 189).

Although I grouped the interviews into one or two days for practical reasons, I scheduled them so that there was always at least 30 minutes between them, which allowed some reflection on what had been said and whether the right kinds of data were being obtained. It also allowed me to check that recordings were successful and think about the forthcoming interview in the light of my reflections. At the end of two or three interviews I had time to write some field notes for further review. All interviews were transcribed. I checked and corrected the transcriptions and put the interview data into N6 qualitative data analysis software. This enabled the data to be quickly coded in a descriptive sense. This coding may be found in Appendices 23 and 24. This process meant that a thorough review of the first set of interviews in each setting informed the second set of interviews. I was also gathering data from staff members, lecturers and librarians, as well as documentary material such as module guides and information skills materials, which further informed my analysis and interpretation of the data and helped to shape second interviews.

Data analysis is discussed further in the next section but one problematic issue which arose because of the design and conduct of the study is worth raising at this point.

Was it right to combine two sets of data and analyse them as a whole? I considered that students in levels two or three of undergraduate study would be appropriate for the research because they would have sufficient experience of academic tasks requiring the practice of information literacy. What happened was that most of the Biology students had very limited experience of this kind, although my main lecturer contact, Professor Cedar, believed that their experience was quite substantial. The initial work on analysis of the student interviews was problematic not so much because the students had *limited* experience but because their descriptions and reflections were hard to interpret; they were disorganised, fragmented and

often highly inconsistent within even one section of an interview. When I worked on the Social Science interview data, patterns and themes were much clearer. I worked for some time on different approaches, treating the two data sets separately or together. As I developed categories, I came to believe that it was appropriate to combine the two sets of data. The Biology student data showed very similar characteristics to the Social Science data, but in a more fragmentary form and with some substantial gaps. However, the categories developed, and their characteristics, still made sense in relation to the Biology group. Because of the stage they were at, however, their experiences were less developed and indeed were rapidly developing, particularly in relation to the scientific communication module.

I realise that this approach is open to criticism on two counts. Firstly, the research outcomes may not be as good a representation as possible of the experience of the Biology students as it was actually described by them. Secondly, by treating their experience as, in effect, a less developed form of the experiences of Social Science students, this rather presupposes that the biology students were on the same developmental trajectory. This is questionable, given possible disciplinary differences. In support of my approach I would argue that the categories generated did represent the Biology experience of information literacy, and this can be demonstrated by links to the data. This does not mean however that it was the *only* way in which their experience could have been represented. In relation to disciplinary differences, if we look at what lecturers *said* that they wanted, there are considerable similarities in the two subjects; for example in relation to assignment criteria (see Appendices 6, 7, 19 and 20). Finally, this research set out to develop improved understandings of students' experiences which would have some value in developing educational practice. I judged that the way in which I presented the outcomes met these criteria, although the outcomes should not be taken as definitive and further work in a range of disciplines is certainly needed.

3.3.3 Ethical issues

A number of ethical issues were addressed in the research design and arose in the course of the study. Approval from the Head of Department or equivalent was sought, as appropriate to each research site. Relevant academic staff were also informed. All of the individuals involved in the research were volunteers, but an ethical approach required that they were informed volunteers. Extended contact through the initial interview phase ensured that lecturers were fully informed and had the opportunity to negotiate what was involved in the research. Student volunteers were given an oral description of the research and information in email correspondence. They were able to contact me to discuss any questions and concerns they had as they decided whether or not to participate. The first interview was used to clarify any further issues with them. In the course of the data collection, I ensured that the educational process was not disrupted. This meant, for example, taking particular care in observed class sessions not to interfere with what was going on and being flexible about timings of student interviews to ensure that their studies were not interrupted at crucial times.

In my contacts with research participants, I aimed to maintain a researcher role. I have had experience in the past where students have asked for advice about assignments during a research interview which I clearly could not give. In this case that did not happen. It was lecturers who asked directly for advice about how they might improve their modules and they requested feedback from the research. I addressed this by visiting the lecturers concerned; Professor Cedar, Dr Willow and Dr Elder, after the empirical research was completed and I had done some preliminary data analysis. We discussed issues which had arisen, my preliminary interpretations and their ideas for developing their modules. I felt that this was appropriate as an academic colleague and as a way of thanking them for their co-operation. However, I had to be extremely careful not to discuss individual students who might then be identifiable. I had never told the lecturers which students participated in research, but they did know who some of the interviewees were because students themselves had discussed it with them. I explained at the beginning of my discussions with lecturers that I would not be able to talk about individuals for reasons of confidentiality.

Ensuring that, as far as possible, research sites and individuals could not be identified was somewhat problematic. The universities were given pseudonyms but in the social science case I also had to change the name of the department because I knew that otherwise it would be readily identifiable. Lecturers and students were also given pseudonyms. I was concerned that students could be easily identified within their own departments if I included information such as the specific topic of their dissertation or even essay titles. I felt that this could be detrimental or embarrassing to students who might still be studying as undergraduates or postgraduates when my research was published. Although I did not judge what they told me, a lecturer reading it might do so. I am certain that lecturers would, at the very least, have been surprised at some of the approaches taken and opinions expressed by even 'good' students. This meant a compromise, however, with the authenticity of the presentation of data because I had to either exclude or amend quotations which referred to specific topics or other features which could identify individuals.

A final ethical consideration also relates to the reporting of the research. For me it is important to report the research in a way that is not unduly critical and never disparaging of either students or lecturers. It is undoubtedly the case that students do not always approach their studies in the ways hoped for. However, the overall ethos in reporting should be that 'problems' identified are not irretrievable failings on the part of students, or academics, but are inevitably part of a complex process such as teaching and learning, and are open to change. Without this belief in the possibility of improvement, the research could not claim to be truly educational and would be unethical.

3.4 Experiencing phenomenography

Although I had chosen to use a phenomenographic approach and had a planned programme of empirical work, this did not mean that all methodological issues were resolved at the beginning of the research. There were practical and conceptual questions to be addressed, perhaps

especially as some of the methods of phenomenography are far from clear. The process is one of experiencing and learning about phenomenography.

3.4.1 Defining the phenomenon of interest

The definition of the phenomenon is crucial:

> *'although the boundaries are laid at the start, the processes of collecting and analysing data cast light on the boundaries, shift them, fill them in and turn the whole thing around'* (Marton & Booth, 1997, p. 132).

I was fortunate in being able to draw upon formal definitions of information literacy and I did not feel a need to change this as a result of the research. It was not so much the external boundaries of information literacy that changed but the relationships between the internal aspects of it. Nevertheless, during interviews it was sometimes difficult to delimit information literacy and decide which of a student's comments to pursue in more depth, since information literacy shades into 'just learning' on the one hand, whilst on the other it can encompass very specific skills and actions. The sharpening up of my conception of information literacy happened in course of interviews (Kvale, 1996) and as I worked with the data.

The most significant issue with information literacy was that I could not ask about it directly, or at least this would not have helped to answer my research questions. Information literacy is not a term in everyday use. I only found one academic interviewee who knew of the term and only one of the three librarians I talked to used it spontaneously. No student had heard of it. In this respect, information literacy differed from something like 'learning' which is in common use and which can be used as a starting point to explore experiences of it. I therefore had to use descriptions of activities which, based on the formal, professional definitions of information literacy, constituted its practice.

3.4.2 Interview design

Designing interview schedules was challenging and there is no specific guidance to be drawn from the phenomenographic method. The balance between direction (because any interview

must be about something), and openness to the interviewee's experience, must be managed. I accommodated this by using broad topic areas and open questions initially and then following up with specific questions where an aspect of information literacy that I thought was relevant had not been covered. Interview schedules were also used flexibly so that the order of questions was not the same for each interviewee and I felt able to follow up on specific comments that an interviewee made. The flexibility allows the interviewee's perspective to guide the data obtained and it enhances the conversational feel of the interviewee (Kvale, 1996). A pilot interview with a social science student from my own university was helpful in designing the interview schedule. Some typical questions and my reasons for including them are shown below.

Table 6: Examples of question types

Question	Rationale
Can you tell me something about the module – what do you have to do in that course?	An example of a question seeking to open up the student view, making no assumptions about what they consider to be significant.
There are reading lists every week: how do you use those?	An example of a follow-up question to be used if the student has not mentioned an element of the module deemed to be relevant to information literacy practice.
Was finding information for your essay difficult at all? In what ways?	An example of an indirect question asking about a more specific issue, in this case the student's skills in information seeking. The aim is to maintain the student perspective as much as possible, although this question could be followed with specific probes depending on response: e.g. what made you decide that there was no relevant information in the library? How did you know?
Was this formative essay different in any way from the essays you normally do?	An example of a question designed to find out something about the typicality of the specific situation being discussed and also to illuminate the student perspective further by getting them to take a different angle by comparing this experience with others
Is the dissertation one of the best things you've done or one of the worst? Why?	An example of a question which is evaluative rather than descriptive. It is designed to open up a broad issue; in this case the student's reaction to the potential for autonomous work implied by the nature of the dissertation in the course.

The interviews were designed to encourage interviewees to offer descriptions and reflections. The phenomenographic approach is criticised by Richardson (1999) on the basis of Marton's claim that interviewees can be brought to a special state of 'meta-awareness' in interviews and are able to articulate previously tacit understandings. Whilst I would reject the idea of meta-

awareness, I feel that appropriate questioning and listening can encourage interviewees to talk about issues that they may not spontaneously raise or may not have talked about before. Some interviewees are more readily reflective and able to describe, for example, the reasons for their actions or how they felt about things: others need to be encouraged by additional questioning. This includes reflecting back to them something they have said, not primarily for clarification, although this can occur, but as a stimulus for reflective comment about it. I also find it useful to bring interviewees back to specific experiences for most of the interview. This can be done by asking about a specific activity such as the essay they are currently writing or, when students make general statements, probing for specific examples or contrasting examples.

3.4.3 Interviewing

The success of interviewing depends not only on the preparation of interview schedules and good questions, but on the way in which the interviews are conducted. This is especially true in a constructivist approach, where it is acknowledged that research data is created during the interview. Guba & Lincoln, (quoted in Schwandt, 1998, p. 243) state that the quality of construction depends on:

> *'the range or scope of information available to a constructor and the constructor's sophistication in dealing with that information'.*

This applies during the course of an interview where the interviewer must encourage the interviewee to talk at length and be able to 'hear' what is relevant and distinctive and encourage the development of those issues in order to obtain as full a picture as possible of the interviewee's experience. On the other hand it is detrimental to try to pursue topics on which the interviewee has nothing to say (Lucas, 1999).

I was able to get interviewees to talk at length and to explore some aspects of their experience that were particularly relevant. I was helped in this by prior experience with similar interviews and because as a teacher I had used reflective techniques which require a similar approach, encouraging lecturers to reflect on their experiences of teaching. Some interviewers who are, like myself, academics interviewing students, find it difficult to listen without judging when

students express mistaken ideas (Lucas, 1999). I did not find being non-judgmental a problem. In my teaching practice I would not judge the ideas people expressed, though I might encourage them to think further or offer alternative ideas and I was careful not to stray into this during interviews. Because the interviews were guided by the interviewees' responses, they varied. All covered the key topics but some raised specific issues which were not covered in others. This meant that when the data was analysed there were some gaps, or I could see topics that might have been pursued further. This is inevitable when using this approach. Overall, a sample of the interviews were externally judged to cover the topic of interest in sufficient depth and breadth to form a good basis of data for analysis.

3.4.4 Data analysis and interpretation

A number of authors (Ashworth & Lucas, 1998, 1999; Richardson, 1999) have stated their concerns about the lack of guidance on the practical procedures of phenomenographic analysis. Many researchers have described in broad terms how they have undertaken the task but there is no formula which can transform a set of data drawn from a number of individuals into a set of categories in the way that, say, a set of numerical recordings can be reduced by using standard approaches such as averages and measures of dispersion. Initially I set out to 'understand' the data by looking at individual cases and across the data set. To understand individuals, I summarised each interview using standard headings derived from the topics the interviews had covered such as information seeking, assignments, interest in the subject. This forced close reading of the interviews and was an excellent way of becoming familiar with them. I also pulled the interviews apart by coding elements, again largely in terms of what the statements were about, using N6 software. This coding is shown in Appendices 23 and 24. This was useful in easily enabling me to obtain and read through everything that had been said about say, journal articles, or academic grades. Familiarity with the data enabled me to draw together a report for each of the two groups of students involved. However, the move into data interpretation began when I concentrated on developing categories.

I spent quite some time *not* developing categories because I was concerned about jumping in too soon and perhaps drawing too much on existing categories such as Hounsell's (1997) categorisation of the experience of essays. The preliminary work enabled me to identify themes or topics in the data, some of which derived directly from interview topics and some of which had been introduced by students. At this point I felt stuck. Applying techniques such as Marton & Booth's (1997) suggestions about decomposing experience into structural and referential elements did not seem to help. What did help was fully accepting the production of categories as a creative act of construction. From other experience, I recognised that I needed a sense of what the creation would be like and I was sufficiently familiar with other phenomenographic models to give me that sense. I then focussed on asking two key questions which were not reducible to techniques, but required familiarity with and genuine interpretation of the data. The two questions were: what are the critical differences which distinguish one category of experience from others? and, what range of features constitutes the experience in each category? The process of developing categories still took time and effort, but there was a sense of moving forward. The process was both divergent; making connections between diverse statements and ideas; and convergent and logical, checking whether connections or distinctions made, perhaps on the basis of one or two instances held in other cases. This is echoed in Schwandt's (1998, p. 249) statement that we need to be *'comfortable with the blurring of lines between the science and art of interpretation'*. Many different versions of the categories of information literacy practice were developed before the final version was created.

In the first stage, as I summarised the data from individuals or a student group, I felt confident that the approach would have a high level of reliability. I was fairly sure that someone else undertaking the same task would end up with quite similar results. This was partly because there was limited transformation of the data. At the stage of developing categories, this is much less the case. I identified distinctions very much by making connections with what I brought to the texts of the student interviews, my own interests and questions. Someone else coming to the same text would inevitably make different connections and decisions. However, the idea of reliability is usually adapted in interpretive studies, drawing upon Lincoln & Guba (1985). The evidential base of the interviews offers 'confirmablity' in allowing judgements of the quality of the

data and of the categories as a reasonable, but not the only possible nor indisputably the 'best', representation of the data. 'Dependability' is said to rest on the methods of handling the data. Denzin (1994, p.508) relates these to grounded theory approaches, but his description is equally applicable to my approach: *'comparing incidents applicable to categories, integrating categories and their properties'*. This can be expressed as constantly asking questions about one's interpretations such as: Does this statement *really* provide an example of this element in my category? Is this difference which I have *not* so far incorporated into my categories actually significant? How should I treat students' descriptions of what they do, of what they *don't* do and what *other people* do? Some good ideas, despite any feelings of attachment to them, have to be discarded.

3.4.5 Writing

Some of the issues raised in presenting phenomenographic research are common to many qualitative studies. The most obvious is how to present sufficient evidential base for the interpretations. I took the widely-used approach of including many direct quotations from interviewees to substantiate claims being made. Whilst this makes the presentation rather lengthy, it should also make it more engaging for the reader and help them to make sense of the more abstract model through linking to examples of the data on which it is based. It also allows the reader to make somewhat different interpretations, if they choose to do so.

Phenomenographic categories give particular difficulties in presentation since they do not represent groupings of individuals, yet the words of individuals are used to define them. It is perhaps impossible to avoid writing about or giving the impression of students-in-this-category, although I have attempted to illustrate categories by drawing upon data from more than one student, acknowledging that individuals are:

> *'the bearers of different ways of experiencing a phenomenon, and the bearers of fragments of differing ways of experiencing the phenomenon'*
> (Marton & Booth, 1997, p.114).

However, individuals do not always behave as we would like and some students in this study seemed to be more fixed in their experiences and almost demand to stay within one category or

another. There is nevertheless a danger of labelling (Haggis, 2003), especially where some experiences may be viewed as better than others.

Finally it was very important to me to present students' experiences accurately and honestly. I felt a strong responsibility to them to do so. I also felt that what I presented should be potentially capable of helping others, particularly educators and librarians in higher education, to better understand students' experiences and have an influence on their practice which would improve learning and teaching. This first depends on the credibility and transferability of my interpretations (Lincoln & Guba, 1985) enabling readers to feel that the account is trustworthy and sufficiently detailed and realistic for them to connect it to their own situations. Beyond that, it also draws upon the criteria for evaluating constructivist research which Schwandt (1998, p. 246) terms pragmatic and Guba & Lincoln (1998, p. 213) consider as authenticity. These criteria include the development of a better understanding by the researcher and those who use the research, and the extent to which the research presented acts as a stimulus to, and empowers, action.

Before presentation of the thesis and other publications, I can only judge this on the basis of initial reactions to discussion of the research. When I went back to talk to lecturers who had been involved in the study, they certainly found the ideas emerging interesting. Professor Cedar asked me to offer a departmental seminar as he thought that the work would help to inform the on-going re-development of the degree programme. Dr Elder asked me to join her in presenting a seminar about her module at her university's staff teaching and learning conference. Dr Willow said that she intended to make some specific changes to her scientific communications module as a result of our discussions. Mrs Rowan talked to her library colleagues about possible changes to their information skills training work. The initial signs indicated that potential research users were interested in the research.

Chapter 4

Experiences of information literacy

4.1 Introduction

The aim of this chapter is to present variations in the experience of information literacy. It is concerned with issues about information that is sought and accessed in books, journals, Web pages and from other people and used in studying and learning to some purpose and outcome. In this case the main outcomes are student essays and dissertations. The analysis presented in this chapter stays close to the data. It is not based on the difference between what students do and any ideal model or standard, nor does it attempt to fit students' experiences into a pre-determined model.

The main element is the presentation of a descriptive model drawn from the data. It is acknowledged that this model is a particular description or interpretation of the data and one which is informed by my previous knowledge, interests and the use of sensitising concepts from previous research. Another person would have seen different things in the data. The development of categories of experience provides a useful communication device. The set of categories occupies a middle ground between description of the unique experiences of individuals which would be difficult to make sense of, and broad themes which might be over-generalised and add little to everyday understanding of the student experience of information literacy. By offering a more detailed description, and a construction which is more developed than commonplace observations, it is hoped that the model can contribute to better understandings of information literacy.

4.2 Context

The student data is set in context here with some descriptive information about the course contexts. Summaries of the data on each individual student may be found in Appendices 25 and 26.

Biology

Students were in Semester 1 of Year 2 of their degree course; either Biology or Environmental Biology. During this semester they were taking six modules, one of which was Professor Cedar's plant physiology module; another was a scientific communications module. Most of their modules had lectures and practical laboratory classes. Reading alongside lectures was generally highly directed and might be confined to one or two textbooks. Most modules had some assessed course work; usually practical reports but sometimes essays, and a traditional unseen exam at the end of semester. The scientific communications modules were atypical in that they had no exam and were assessed by written assignments and oral presentations. Biology students had been given information skills instruction in their first year whereas for Environmental Biology students this was part of the scientific communications module. The subject librarian noted that, perhaps because of the ease of access to ejournals and online databases, these students were expected to make more use of scientific literature than used to be the case even a few years previously. Further details about course work elements of the scientific communications modules are in Appendices 6 and 7. All students had a lot of experience of writing practical reports but some had very little experience of writing scientific essays. Some had written one or two essays in their first year but that depended on the modules they had taken.

Social Science

The students were in Semester 2 of the final year of their degree course. In the final year they took six year-long modules, one of which was Dr Elder's Anthropology/Area Studies (AAS)

module; another was the honours dissertation. They had considerable choice of modules and so their programmes varied. Most modules were taught by lectures and seminars. All modules had reading lists which were usually extensive. There was a general expectation that students would read widely and the AAS module followed this approach. All modules required students to submit a formative essay in Semester 1 and a summative essay, which contributed a percentage of the module mark, in the second semester. Information on the AAS essay is in Appendix 19. Most modules had a traditional unseen exam at the end of the year, as did AAS.

A few students were doing modules where there were additional essays or another type of assignment, such as a report or small research project, instead of an end exam. An extensive WebCT site was available for the AAS module and this was also the case for some, but not all, other modules. The dissertation 'module' required students to undertake an independent study which could be empirically or library-based. They received one-to-one guidance from a dissertation supervisor. Extracts from dissertation guidelines are included in Appendix 20. Area Studies students appeared not to have had formal information skills training, but aspects had been included in some modules. Anthropology students had received formal information skills training in their second year. The subject librarian reported that, until recently, the kinds of skills covered had not been addressed until post-graduate level.

4.3 Experiences of information literacy

Information literacy refers, however it is defined, to a process which takes place over time and which can be divided into stages. After reviewing the data during the course of its collection and in the summative data analysis phase, it was clear that four standard stages could be identified within the students' experiences of producing academic work. These would provide an

intelligible framework for presenting the data obtained and enable the complexity and variation in the student experience to be discerned. The terms used for the four stages here are:

1. Getting started (e.g. responding to course demand, selecting a topic)
2. Acquisition (e.g. information searching, obtaining and selecting information resources)
3. Production (e.g. process of writing an essay, developing an understanding)
4. Outcomes (e.g. academic product and grade obtained, personal gains)

Although this is a stage model, it is not to be assumed that there is a linear progression over time from stage 1 to stage 4. Students may re-visit an earlier stage and undertake activities relating to more than one stage simultaneously, or in an iterative fashion. The data drawn upon here mainly relate to the scientific communication essays for Biology students and essays in a range of modules and the honours dissertation for Social Science students. Where other academic work is referred to, this is clearly indicated.

It is important to reiterate the nature of categories of experience. They represent differences in the experience of information literacy deemed to be significant and are drawn from the data across all individuals within the research. It is not the intention to place individuals into categories, although some students do seem to have a consistent and coherent experience which would seem to place them in one particular category for most of the time. Even so, in different circumstances their experiences might well be different and this can actually be shown within the data when students discuss different subject modules or when different types of study activity are examined. For example, students may report a different experience when they produce an essay compared to a dissertation.

4.3.1 Variations in the experience of getting started

Getting started was often a brief stage, as students soon began to acquire information. The main early activities were:

- Considering the options available and choosing a title
- Checking expectations and assessment requirements
- Reviewing what you know or what resources you have that are relevant

A distinction was made between a task-centred intention to complete the assignment as an assessed task and an intention to learn about a topic. This distinction has been made by a number of earlier researchers. Whilst it is helpful to make conceptual distinctions between these categories, however, it should be stressed that careful analysis of the data shows that most students considered the task *and* the subject matter. Nevertheless, some students' experiences were much more task-related than learning-related and vice versa. There was also an 'interest factor' which bridged the two categories. Even the most task-centred student preferred to embark on what they thought would be an interesting topic rather than a boring one.

Table 7: Experiences of getting started

Task-centred	Learning-centred
Selects a title which will be easiest or most feasible to do Selects a title giving the opportunity to do the best possible in the assignment Considers the title to determine what might be involved or how to approach it Checks expectations or requirements with course materials or with the lecturer	Selects a topic which would be interesting to learn more about Considers own knowledge and resources (e.g. information resources, lecture notes, previous essays) in relation to the topic Considers what the topic is about and what it might involve or cover
Interest	

4.3.1.2 Task-centred

Selena[1] chose an essay title because:

> *'it's the only one that I kind of understood, because I really don't understand all the kind of structuralist things that we'd been doing before'*

Practicalities could also be a reason for choosing a title and could influence initial choices.

Shahira changed her mind on the basis of availability of recommended readings:

> *'I was looking for books on [one title] and they'd been taken out, so I found all the books on [another title]'*

Becky selected an 'easy' title, taking into consideration the supervisor and laying aside issues of 'interest':

> *'I thought I'd rather do an easier topic with [a supervisor] I know, than a more interesting topic, which is harder, with someone I don't'*

Even when he had a wide opportunity for choice with respect to his dissertation, Salim opted for something straightforward:

> *'It was not the hardest topic but also not the easiest and [it] was interesting to find out ... there was nothing else, I suppose I didn't really think about anything in as much as I just thought, well there's plenty of stuff on it ... in this library anyway, so I thought I might as well just do that.'*

Bridget chose her own title for her essay and tried to make sure that it gave her a good opportunity to meet the requirements:

> *'It's quite a controversial area and there's lots of reports, so I think it suited what the module leader was after in the way of the project. It was a relevant topic and I could get information that gave me the sort of information, sort of material, I needed.'*

Brian also chose his own essay title and considered what would impress lecturers and gain him as good a mark as possible:

> *'[lecturers] like the current topics. They'll look good because they're in the news, nobody knows a lot about them so they won't be bored reading it and the other bit being that they might not know too much about it, so they might not mark you down that much.'*

Sean had several ideas for his dissertation and weighed them according to their potential for a successful outcome:

> *'I thought [something on music] would be quite good, and then I thought I didn't really know very much, I thought it was a bit tricky and I thought I wouldn't really get anywhere'*

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[1] Names beginning with the letter S indicate Social Science students and names beginning with B indicate Biology students.

Deciding that a title is easy or suitable implies giving some thought to what might be involved but this was generally a rather superficial consideration. Stuart did however start with a detailed consideration:

> *'I [chose that title] more on the fact that it seemed quite straightforward because I think a lot of essay titles can be quite confusing, and I always look at it, if I can define what I'm meant to be investigating and discussing first of all and then have arguments either way, I usually prefer something specified like that, and this one seemed to fit, at least from first look. Obviously when you investigate it, it doesn't come as simple as that, but it's a case of weighing up the essay titles amongst each other and which one seems to make the most sense to you.'*

Beatrice was not happy at first with the topic allocated for her essay. She thought that studying the topic would be boring and '*not quite me*'. She talked to the module leader and when she could see what might be involved and what she would need to do it seemed straightforward so she was happy to go ahead. Interest seemed then to be less important:

> *'I thought, well I can do this ... with a few case studies of ants and previous knowledge and it's a wide subject - I think I'll be away with two thousand words'*

On a number of occasions students referred to module or assignment guides or, like Beatrice, 'checked things out' with a lecturer at this early stage. Before she started on an essay about pilgrimage which had quite an open title, Selena checked the requirements with Dr Elder who said '*I wrote [the title] like this on purpose so you can write about anything you want*'. Selena was then happy to move forward on the ideas she was already developing. Stuart explained how he checked with his dissertation supervisor that what he was proposing met the requirements:

> *'it was more a case of – right, this is what I'm thinking about doing, first of all, does this meet the criteria of a dissertation ... am I going outwith the remit, get confirmation that what I'm doing is OK'*

Early contact with a lecturer was also a way of getting pointers in the right direction. Bethany felt completely lost when faced with her essay title and she obtained guidance from her essay supervisor:

> *'I went to see him because my topic ... it's a bit hard .... he sort of got my mind going - oh I could do this or I could do that'*

4.3.1.2 Learning-centred

When students focussed on the content of the assignment and what they might learn, some looked for links to interests they had within the course:

> *'it was just really interesting when we did it last year about all the different levels of meaning that pilgrimage can have, so it interested me a lot more' (Selena)*
> *'I did a module last year and [there] was just half of a lecture that was on coral bleaching and I really enjoyed it.' (Bridget)*

Some of these 'interests' were relatively casual and speculative and some students were simply quite open to learning something new, such as Bernadette:

> *'[It's a] totally new [topic], but I quite like the idea of learning something new on my own.'*

Other descriptions suggested a stronger personal commitment to an area of interest. Brendan knew what area he wanted to choose for his essay:

> *'I'm really interested in marine biology. I thought - I'll **have** to do something related to that'*

Sophie said:

> *'It appealed to me **far** more than the others, it's just, I'm interested in metaphor and symbolism'*

Sadiyya chose migration as an essay topic because of links with personal experience:

> *'my personal life really, I've been through the process first-hand ... [knowing] somebody who's trying to get into the country and going back to [their country] on a regular basis ... it's quite interesting to see their attitudes towards Britain and abroad and, so I thought it would be interesting to see ... I thought it would be nice to do a study on that'*

There were relatively few examples of students 'mapping out' a topic at this early stage before embarking on information seeking and reading. It would obviously be difficult for students to map out, right at the start, a topic they knew little about. Brian read one article on his topic and then made a plan:

> *'I did a spider diagram, ... [then] I took a red pen and linked one to another with a phrase, so that I could set out an order for it.'*

It must be noted that Brian was required to submit a plan as part of the essay assessment process. However, some of his fellow students did not even mention their plans and only Brian said that his plan was helpful in guiding his information acquisition. Sophie mapped out her

essay titles in an informal way, thinking about them in relation to her own knowledge and interests:

> *'it was something that I wanted to talk about and think about in my own head ... you suddenly start having ideas already and it's not necessarily anything to do with what you've been learning in that module, it can be an idea from personal experience or other modules'*

She was also aware of practical benefits. When she chose an essay based on her interest in symbolism and metaphor, she said:

> *'I was able to use some of the references for my dissertation in this essay as well'*

4.3.2 Variations in the experience of acquisition

The acquisition stage of information literacy practice includes:

- searching for information resources using databases, catalogues, search engines, or browsing in a library or bookshop
- physically acquiring information resources including: borrowing from libraries or other people; purchase; printing out electronically stored resources
- reviewing search strategies and the information resources obtained, making decisions about whether to discard materials or keep them for use

This stage of activity was evident in the practice of all of the students in the study. It was also a feature common to all of the students that their approaches to acquisition of information were sub-optimal when compared to formal, normative models of information seeking. However, there was considerable variation in how students went about acquiring information, their rationales for using their approaches, and their perspectives and personal experiences of the activities. Four categories capturing the key differences in experience have been developed: minimalist, gathering, pinpointing and connecting.

4.3.2.1 Minimalist

Table 8: The minimalist experience of acquisition

Purpose/Rationale Aims to do enough to fulfil the requirements of the academic task
Determining information need Does not consider in any detail the requirements of the task in relation to the information to be acquired
Information-seeking process Acquires whatever information resources are most obvious or are the quickest and easiest to obtain Aims to obtain something 'related' which is readily available Deploys a limited range of information seeking skills and knowledge
Criteria for ending information acquisition Stops searching, usually after quite a short time, when the student feels that enough time and effort has been put in Is satisfied with a limited amount of information resources of some relevance

The minimalist approach to acquiring information is characterised by minimising effort and getting some information resources together quickly in order to meet a course requirement. It stems from a starting point which is highly task-centred. Salim's approach was to go to the library, without considering the assignment requirements in detail, try to find books from the reading list and, only if they were not available, look around on the shelves in that section of the library for other books on the topic. This did not take long and he felt it would provide what he needed:

> *'there was eight books in the reading list so I said, even if I have four, that's more than enough for now'*

Although all of his fellow students in the study made use of academic journals, Salim could not see why, because he thought it would be difficult and no better than using the books:

> *'[I] just don't want to waste hours and hours looking for something when you can just find another book.'*

Salim's information searching skills appeared to be very limited. He also had problems using the Web links provided by the lecturer on the module WebCT site and he questioned the value to him of what he might find:

> *'it's just a lot of effort sometimes which will give you no real reward. … I just find it's quite time-consuming when, if you've got the books that are telling you exactly the same, just use them.'*

In contrast, Becky was an enthusiastic Web user, but her reasons were similar to those which led Salim to rely on recommended books. Becky found using the Web '*quick and easy*'. She searched for relevant information using a general search engine such as Google and then printed off sections that she wanted to use for her assignment:

> *'what I can do is, I can get the information off the Internet, basically quickly flick through the pages, see what's interesting, print it off, take it home.'*

Becky continued to rely heavily on the Internet to find information for her essay, even though she had been told not to rely on it and to use other academic information resources. She did not see the point of reading a large number of papers once she had something because in large parts of biology:

> '*if they find something out, they've found it out and it's known to be true ... with a lot of [aspects] people are just finding out the same thing over and again and testing it.'*

She also narrowed down her topic so that she only needed to look at '*one thing*' which made it easier.

Information searching in this category is quite unfocussed and not targeted towards specific sub-topics, issue or questions. Students may search on the library shelves or in a catalogue or database but are satisfied when they find something related to the topic at a broad level, rather than considering its relevance to the specific assignment or to sub-components of the topic. Briony used an appropriate electronic database to access scientific literature and she saw as the main benefit that: '*it won't take as long to do research and get specific information.*' Her lack of thought about how she should search or what was involved in her topic is shown by the fact that she said *'I typed in my essay title'*. She used only a minimal approach, based on word-matching, to determining relevance by looking at the titles and the abstracts of the retrieved articles only to see '*if it had the words*'. Briony was not very persistent in her information searching and in the end only had three articles to include in her essay.

Although some students, such as Salim and Becky, described using a minimalist approach on a number of different occasions, others seemed especially inclined to take this approach when they were under time pressure, had practical difficulties or considered that the assignment in hand was of low priority. For example, Sean returned to university in the Easter vacation. The

library was closed for a few days and he had a limited amount of time to produce his summative essay so he turned to the Internet, which was not his normal line of approach:

> *'I started off looking on the Internet because the library was shut … for the first two days that I was looking for things, so I looked on the Internet and I was trawling newspaper sites like the BBC - actually it was **just** the BBC'*

Sophie had a formative essay to write when she was very busy with other assignments and working on her dissertation. She wrote this essay the night before it was due to be handed in and her information seeking was very limited:

> *'I pulled out all the relevant lecture notes and handouts from, both from this year and from the module I did last year because we covered it last year as well, and used about three of the books from the reading list.'*

4.3.2.2 Gathering

Table 9: The gathering experience of acquisition

Purpose/Rationale
Acquires information resources in order to clarify the topic and assignment requirements
Aims for a broad coverage of the topic in order to understand it and produce a good assignment
Aims to accumulate as many information resources as possible
Determining information need
Takes a broad view on what information resources might be relevant for the task
Believes that he or she does not know enough to determine in advance what might be required
Is concerned about the assessment requirements in the sense of 'what the lecturer really wants'
Information-seeking process
Gathers information on the topic in a broad, rather unfocussed way
Deploys a limited range of information seeking skills and knowledge
Information seeking is likely to be extensive rather than precise
Finds information searching rather laborious and difficult
Criteria for ending information acquisition
Stops searching and gathering resources when he or she runs out of energy or comes up against time limits
May have difficulty moving on from information acquisition to the actual production of the assignment

The 'gathering' approach to acquisition of information is distinguished by a rather unfocussed strategy. The student hopes that by acquiring and, in due course, reading a range of information sources, it will become clear how to address the topic, question or title for the assignment. The impetus stems both from a need to complete the task and a wish to learn

about the topic involved. The two are linked since understanding the topic is seen as related to success in the assignment.

Shahira looked for information, usually books, as the first activity on an assignment and decided what was relevant by skimming or scanning the materials. She felt she needed to gather materials first: if she just 'started' she would not know what she was talking about so she looked broadly, with no explicit guiding framework in mind. Shahira began with recommended readings because she felt they would not only tell her something about the subject but would indicate what the lecturer had in mind:

> *'the reading list gives me a good idea of what they are actually looking for, because if they've put it on the reading list and it's related to that question, I'll look and I'll get an idea from there'*

Although Shahira had completed many essays by this stage in her course, she seemed to ask herself for every new assignment what was *really* wanted:

> *'I don't know where to look sometimes or what she's after, or what any lecturer is after.'*

When she had found books or journal articles she carried on looking broadly:

> *'I find the book and I tend to just read and read and read rather than look at specific bits'*

Shahira put a lot of time and effort into searching for materials but did not appear to have very well developed skills and knowledge to help her. She said:

> *'I spend a lot of time searching, I can spend a day in the library and come away and somebody will say - have you got a lot of work done? and I just feel like I've not done anything ... I mean I've got some information but a lot of the time I don't feel like I've had a productive day.'*

Shahira normally gathered together information, read it and then wrote her assignment. By the writing stage she hoped to be clearer about what she should write. She says: *'read first, take notes and then get a plan'*. Sometimes her planning is helped by finding a 'structure' she can use in a book, on the Web, or in her lecture notes.

Sadiyya found 'quite often' that what you are supposed to be writing about can be '*vague*' and it is not clear what is required, so:

> *'it is just a case of reading chapters that you think might be relevant and then constructing a plan of an answer once you've done the reading, so a lot of the reading you might do might not actually be relevant'*

She sometimes started writing rather late, having spent a lot of time and effort on gathering information and reading broadly without narrowing down or focussing her topic:

> *'I did the reading and stuff quite early on, but I actually did have quite a hard time getting into writing the whole thing'*

Sean placed a lot of value on reading widely to develop an understanding:

> *'in terms of your own understanding of the question ... with the more references you have, the more hopefully you understand it.'*

Some students appeared to use a gathering approach most of the time and others did so in relation to specific assignments. A number of the Biology students, when faced with their scientific communications module essay, looked broadly for information on the topic or title first, trying to see what might be involved and acquire a basic understanding because they felt they knew little about it:

> *'I've got all this from websites ... which is good to get a general overview... it's going to be useful just having a look through and see what the topic's actually about because I know nothing about it.' (Bernadette)*

> *'to help me sort of understand I had to go back a bit and get the basis of the coral, how the corals work and what's going on with them, and then that's what I used the textbooks for'* (Bridget)

Selena talked about searching quite widely in relation to 'hard' titles:

> *'if I've got no idea then I do the reading, like for this [one] because the title's quite hard, so I had no idea, so I did lots and lots of reading sort of all around. I read quite a lot about terrorist groups and just sort of every single thing that could possibly fall under it and stuff, so yeah, like a really wide, broad spectrum of issues'*

When it went well, she developed a coherent perspective through reading:

> *'the more time that you spend just reading, having absolutely* no *idea what you're doing, and then it suddenly comes together, you suddenly go, OK here's some ideas'*

Alongside hoping for inspiration, Selena also sometimes looked for a structure that she could use or adapt:

> *'the best way if you're really not sure is to get another chapter in a book, or a book, and look at their format.'*

In a similar way, Beatrice was really pleased when she found a 'big book' that laid out the topic she was addressing in a very structured and clear way so that she could adapt that to structure her own essay:

> *'I've got this massive book, which is going to be my main book and it's brilliant, it's really good, it splits it down into all the different types of symbiosis'*

Biology students had all received some guidance on information searching from library staff and this tended to direct them towards a pinpointing type of approach which at least some of them tried to implement. However on the whole their information acquisition was not targeted or well-focussed and tended to fit best with a gathering approach. Initially, students' main concerns were about finding *as much* as information as possible rather than obtaining the most relevant information, as Brian indicated:

> *'I'd spent so much time searching through the various search engines trying to find which one would get me the most articles'*

Brendan described spending quite a lot of time looking through the titles and abstracts of what he found through database searching:

> *'It's pretty much trial and error I think. You look through hundreds of titles of journal [articles] and ones which you think might have a topic that's of relevance, you read it through, I always see how much information I can extract from that, what I can use and what's a bit irrelevant.'*

4.3.2.3 Pinpointing

Table 10: The pinpointing experience of acquisition

Purpose/Rationale Aims to find the right information which will assist them to do well in the assignment and understand the topic Views information searching as a skilled process and gains satisfaction from carrying it out
Determining information need Determines information requirements by analysing the task to be done, the meaning of terms, and considering 'what the question is after'
Information-seeking process Searches systematically for relevant information using a range of search tools. Modifies search strategies if the initial results are deemed inadequate Tries to use approaches and information tools which enable direct access to the resources needed without wading through extraneous materials Demonstrates a reasonably high level of competence in information searching techniques (relative to other students in the same context)
Criteria for ending information acquisition Stops searching when they judge that they have enough information for the assignment with no 'gaps' in knowledge or evidence May engage in iterative searching, undertaking further searches at later stages in assignment writing, if a need to provide more specific information or to answer questions is identified

The pinpointing approach is characterised by an attempt to determine the requirements for an assignment and search systematically for relevant information. A student taking this approach has a primary focus on meeting task requirements and doing well, but also aims to understand

something of the subject they are dealing with. It would actually be difficult to engage in this approach *without* gaining some level of understanding.

Stuart provides a good example of this approach and indeed, he introduced the term 'pinpointing' which has been used to name this category of experience. When he was faced with a list of essay titles he tried to analyse what the questions might require before even finalising his choice:

> *'a lot of essay titles can be quite confusing, and I always look at it, if I can define what I'm meant to be investigating ... I usually prefer something specified like that'.*

He then searched for information, using a range of resources and approaches as in this example:

> *'take the book list first of all, get that out, but I found that it's quite a small topic to be investigating through books, it's not really that much on it and then when I do that I go on to the journal articles to see what's available on that, and that equally had quite a small pool of information so then I just did a search on the Internet to see what I could come up with that way.'*

Selena had an assignment looking at development issues and her selected topic was on family planning in an African country. Her strategy was to use the Internet because she worked out that she needed current information from governmental and non-governmental agencies:

> *'the point of it is that it's got to be current, really, really current, something that's just been done, so I went on the Internet first and found projects and ... reports on projects that had just been done.'*

Stuart's searches were guided by his analysis of the question, what he knew was generally expected, and the specifics of the subject matter. He modified his searching as he progressed, very quickly moving on from general materials to more precise sub-topics or questions. For one essay he decided that information he had found under the broad topic of 'Islamic City' was not sufficient so he undertook further searching for specific aspects:

> *'once you've defined what an Islamic city was, then you focussed in on various aspects of it, I mean the bazaars, the mosques, these are all aspects of an Islamic city, which you then, I went, then went to the library and looked for books on the mosque or the bazaar'*

There were few examples where students talked about 'going back' to search for additional information after reviewing systematically what they had as Stuart did in this example. Bridget

at least identified 'information gaps' but was not able to address the problem when writing her essay:

> *'sometimes the information I needed I couldn't really find it in any of the articles ... we didn't have very much time to write it, we only had a couple of weeks, I think really if I'd had more time I could have [found the information]'*

Stuart employed more advanced information seeking skills than his fellow students and was prepared to develop them. He explained how he had used a printed database and Internet search engines early in his course, then a friend showed him the JStor database:

> *'I was told about it, looked at it, realised how simple it was and then from there progressed. And obviously once you have experience in dealing with search engines on the Internet it's sort of the same basis for a search engine using more databases.'*

Brian was new to using scientific databases but he worked out how to find relevant articles, even though his first approach using the journals in stock in the library was not successful:

> *'I sat down, worked out [what] we were taught last term on how to search the journals ... went through the University ones, found that they were rubbish for the topic, so I went to some external ones [electronic journals] and I think the one I used most was Blackwell's Synergy.'*

Stuart appreciated search tools and resources which enabled him to go straight to relevant information. He thought that journals were better than books because: *'they're concise, to the point'* and he liked the way that the database he used enabled him to pinpoint relevant information even within articles:

> *'it actually lists page numbers that deal exactly with [your search terms] so if you're not really sure, if it looks a bit tenuous, whatever journal article you're looking at, if you skip to the page that the reference is on ... it's quite straightforward'.*

Other students also commented that journals were better because they enabled you to find information in a more precise way:

> *' [journals are] more specific as well, books will just go through really a large area, where journals will have a few, you know, about 50 pages on a certain topic'* (Shahira)

Stuart enjoyed the information searching process. One of things he found interesting in his dissertation was the opportunity to do some new things in this area:

> *'I had to come up with various ways of using sources, thinking about using sources that I'd never even contemplated using before.'*

Similarly, Beatrice who had just found out what journals were, was keen to use them:

> *'[a journal is] not one big book, it's loads of different little chapters and different types of experiments, so you can narrow it down to what you want to read, or need to read and that's quite interesting'*

She mentioned several times that she was keen to develop her information skills and thought that more skills sessions should be offered to students.

A number of Social Science students thought that having a lot of items cited or listed in a bibliography would affect the marks received for an essay. Selena said that students often asked each other in relation to essays '*how long is your bibliography?'* and she also claimed that they sometimes listed more than they had used in order to look good:

> *'they say - I read half of the books and just wrote down the others - so it looks like you've consulted a wide range, but you don't necessarily always consult that wide a range.'*

Biology students in general were aware of the kinds of materials that they should be using because it had been stressed throughout the module that they should use scientific papers rather than solely general texts or Internet material. Brian was sure that having 31 references for his essay would help to get him a good mark. However he also said that he had to '*just carry on writing them down'* rather than really reading the materials. Stuart also believed that having a number of references would benefit him in terms of assignment marks but added that it was more important that they were appropriate:

> *'as many [references] as possible without being ridiculous .. you know, at the end of the day it's just visual effect, and someone looks at your bibliography and sees that you've used thirty books for a four thousand word essay they're quite impressed and think, well you must know what you're talking about. But the thing is also weighed up between what articles you've used that are relevant and that's more important.'*

4.3.2.4 *Connecting*

Table 11: The connecting experience of acquisition

Purpose/Rationale Intends to develop own understanding of the topic and produce a good assignment which represents this Focuses on 'doing something with' whatever information is acquired. The information contributes to the developing piece of work rather than determining it
Determining information need Reviews own knowledge, interests and ideas, and issues covered elsewhere in the course in relation to the task. This is used as a starting point for seeking new information May re-visit information resources that have been used previously
Information-seeking process Conducts information searching as a trail, moving from one item to another Relevance depends on a developing understanding of the topic and the emerging form of the assignment. A wide range of information may be used Is alert to potential connections when searching for something else or working on a different academic task Discusses ideas with fellow students and lecturers who may recommend or loan further information resources Does not consider information searching techniques as particularly important and may not be especially competent compared to other students in the same context
Criteria for ending information acquisition Integrates information searching with writing and producing the assignment so that both go on at the same time. This means that some information resources may be acquired and used at a very late stage Determines that there is 'enough' information when a good understanding is reached and what he or she wants to say in the assignment is clear and complete

The 'connecting' experience of information acquisition starts from what the student already knows and their own interests in relation to the topic of the assignment. Information seeking and the production of the assignment are integrated so that information seeking becomes a chain of relevance as the student's understanding and thinking develops. It could be seen as an evolving guiding framework.

Sophie normally chose assignment titles on the basis of connections to her own interests and intended to develop her own ideas and understanding through thinking and writing about the topic. She made links with ideas and concepts from across the course. One essay covered:

'something my dissertation addressed as well, so I was on that kind of thinking'.

As soon as she started work on an essay Sophie started writing with her own thoughts and then added new material and ideas as they developed. Selena sometimes started on assignments

from '*the background in [my] head*' or writing about something she knew already which she thought was relevant. She found that she could often draw on the same materials for more than one assignment:

> *'there was a big overlap with other essays in other subjects that I've done, so obviously those books were the same'*

Beatrice did not feel she had very much knowledge about her essay topic but she did make a connection with a TV programme she had seen:

> *'there's this book, the Private Life of Plants that David Attenborough did ... it was also a programme. I knew that had ants in it because I'd seen that last year, so I wanted to go on the website and then there was the Really Wild Show [too]'*

Information searching here can best be described as a trail or chain:

> *'in each book you read there'll be a bibliography at the back of that one, certainly for my dissertation that's how I'm going about doing it. I'm also looking on websites and that has, you know, it gives sort of suggested readings and I don't know, I just keep being led on from one thing to the other by various means, by word of mouth, by Internet, by looking in the bibliographies of other books.' (Sophie)*

> *'it's like a treasure hunt and you start reading something and it might take you somewhere else and you find another book that you've read about, or you're happening to bump into books by accident' (Sean)*

Sean only recently started to use the Web and found that it provided another way to follow information trails:

> *'I've come to appreciate its uses, because I used one of the Web links and it gave me a Web link to a North African file and again it gave me a link to the Journal of North African studies and then I looked, and there was all sorts of things!'*

Bernadette's description of working on her essay suggests a trail of information searching:

> *'I'd be sat in the library from lunch time until eight o'clock without realising it. You sort of get absorbed into it, don't you, and [you think] - I want to find more about that, and I want to find more about that - and it just takes over really. It's quite good when it does that'*

Sophie was alert to potential connections so that in a way her information searching was implicit and informal:

> *'recently I've always been constantly thinking about all my assignments at the same time, so I may see something that's relevant to another assignment in the reading I do for another one and so I'll make a note of that on my computer and refer back into that.'*

Undertaking information acquisition at the same time as assignment production, in perhaps a

rather informal way, was seen as having some practical benefits in that the assignment could be built up cumulatively. Selena explained:

> *'I always start writing at the beginning just because it's better to get something down, because if you read something there's no point in indexing loads of pages in a book just so you can go back with all your post it notes and, if you see a paragraph that means something, you might as well just read it, put it into your own words, on the computer'*

It did, however, mean that pertinent information was sometimes found at a late stage. Bethany thought that this was because she understood the topic better as she worked on her assignment:

> *'you get, I think, a better understanding of the topic ... and then you're able to find [something relevant]'*

This can require students to be flexible about incorporating further information. Selena gave an example of this, although this was as much about deferring to authority and what the lecturer might expect as to changing her own understanding:

> *'towards the end I found a chapter in a book that had been written by someone really well known, on my topic, so I saw that and that was completely different. Not completely, but it was really quite different to how I'd done mine, so I quickly did a re-jig to make it more like his.'*

Some of the Social Science students also included student friends in their information acquisition. Sophie referred to fellow students on her own course:

> *'people will be talking about the work and someone might have come across something that would be useful to someone else and there's a sort of exchange network going which I think is really useful because everyone's constantly looking in the library for certain things and if you know what each other's doing, you might be able to find something for them.'*

In relation to her dissertation, Sophie thought of her supervisor in a similar way. She said that her supervisor helped her to 'connect' ideas and also:

> *'she was very good at giving me some references and, anything she thought could be relevant, she'd give it to me. She was enormously helpful'*

Selena referred to friends on other courses, including geography and sociology:

> *'we do swap books and readings and if we're doing something similar, it's always good ... you really have sort of long discussions'*

The approach of exchanging material and ideas with fellow students was not found amongst Biology students at all in relation to their essays. In the context of other assignments, such as

for reports associated with a practical class, students did give examples of working together:

> *'We just helped each other with the research, so if we got a journal [article] then we all got the information out of it.'* (Becky)

> *'I did it with a group of friends ... we read it and we just, we didn't know what it was talking about, [were] very confused, and once we sat down and shared ideas we got there in the end.'* (Beatrice)

A student taking a connecting approach focuses on making sense of, or transforming, the information they acquire. Sophie did not consider that information seeking or the number and kind of resources used were very important. She told a story about a friend:

> *'an essay's ... about how you use what you've got rather than what you use. I have a friend who's in the year above who wrote an essay from one book in his second year and that one book wasn't even particularly relevant, but he still got a first for his essay, just because of the way he argued it and so it's all about how you assimilate that.'*

However she added:

> *'I would feel a bit dubious about just putting one thing in, I usually have about five - or four'.*

She also admitted that perhaps she was missing out by not being better at information searching, but she appeared not see it as significant enough to do anything about it:

> *'I don't feel I've got a grasp of how to use the electronic journals so I kind of just avoid it, which maybe is preventing me from seeing a lot of things, I don't know.'*

She hardly mentioned the need to meet assessment requirements.

Amongst Biology students, there were some instances where more emphasis was placed on doing something with the information gathered. For example, in contrast with Brian who did not really read all the materials he acquired for his essay, Bridget put a lot of effort into understanding what she found so that she could use it properly:

> *'sometimes there was something I'd read, but I couldn't understand it so I couldn't put it in the project because I would have just thrown it in somewhere, probably in the wrong place, and I think maybe with a little bit more time I could have maybe found another article about that in specific and then maybe put it in. Because I couldn't, I didn't think it was right to put stuff in that I didn't really understand'*

4.3.3 Variations in the experience of production

The 'production' stage is about making use of the information that has been acquired. In the case of these students, this means producing a written assignment of some kind.

Production includes:

- Deciding what information to use in the production of the assignment
- Thinking about, sorting out or making sense of the information acquired
- Using information in planning, drafting, structuring and writing the assignment
- Referencing and citation
- Reviewing, reconsidering or reflecting on the work

The four categories are: minimalist, organising, performing and communicating

4.3.3.1 Minimalist

Table 12: The minimalist experience of production

Overall aim or intention To produce an assignment as quickly and easily as possible
Role of information Aims to present information obtained with minimal personal transformation Uses a limited amount of information resources
Structure Undertakes very little if any planning or organising of the assignment, using only a generic structure Includes a conclusion in the form of a summary or formulaic statement
Audience Aims to demonstrate to the audience (the assessor) that they have done enough and have put in time and effort
Relationship to assessment Believes that style and presentation are of key importance in marking and may affect marks more than content Claims to understand what is required well enough to meet assessment requirements at an adequate level

A student taking the minimalist approach aims to do the minimum work in order to meet the assignment requirements at a level that they think they can reasonably hope to attain. They are

likely to use a small number of information resources, and start writing with minimal planning or consideration of what the essay will cover. This approach has much in common with the minimalist acquisition category.

Salim took a minimalist approach to acquiring information and to writing essays. His lack of thought and planning is clear:

> *'I just do reading ... I think by this stage you should generally know what you're going to write . ... you write your introduction and then from that you should be able to know where your essay's going to go really'*

Becky tried to avoid reading anything extraneous or going back over the resources she had found when she came to write her essay. She had done her information seeking first and marked specific sections she thought were relevant:

> *'it's easy to have a piece of paper like this. You know that this is important, so you just put lines around it and then when you come back to it you don't have to read through it again to try and find it.'*

Salim aimed to find what he needed in the information resources he had, rather than decide what was relevant or make sense of it himself. He needed an example of a cultural group for an essay and he was very disappointed not to find a ready-made example in the books he used:

> *'when it came to reading about a group, some [books] just went on and on and on and never really explained what we needed to know for a specific thing'*

Some Biology students relied heavily on a small number of sources, trying to extract key points in order to re-present them in the essay. Bethany talked about '*extracting*' from the materials and getting the '*main points*'. She did not use some information resources she had found because she immediately judged them to be too difficult, even though she knew they were the kind of thing that would help her meet assignment requirements:

> *'I found it quite difficult to extract the information, so I didn't use the book, which perhaps, I think, it would have been better if I had because it would have been more scientific'*

Becky also avoided anything difficult. She had intended to include in her essay the way that plant diseases are spread:

> *'but I found it was just too complicated and too hard and all the information was contradictory - so I didn't really do that very much'*

Although Salim knew that an argument and a conclusion were required, there was no indication that he made any effective attempt to include them in his essays. For example, the conclusion he describes in relation to one specific essay seemed to be little more than a summary and a re-statement of the question. In this History essay he was asked to discuss to what extent two states could be considered patrimonial:

> *'I'd stated that they were, but the extent that they could be [considered patrimonial], varied differently. At the end of the essay, in the conclusion, I was right in as much as they were, they were basically patrimonial but the level of their patrimonialism did actually differ'.*

Shahira also gave some examples of essays where she seemed very unclear about her conclusion or argument. In this particular example, a history essay asking her to explain how the thinking of a particular monarch had developed, she seems to have done very little to transform what she had read:

> *'from the books I read it was pretty explicit where his thoughts came from, so I just argued at that point, it was quite easy, the question ... I just developed that and made sure, yeah, just state that'*

Selena would, on occasion, especially if she did not know very much about the topic or understand it very well, try to borrow a structure from a book or article. Sometimes she relied very much on re-presenting the information she had acquired:

> *'like regurgitating, sort of, bringing all the books together and putting it into your own words, but it's not really your own words'*

Salim took into account how his essays would be marked. He said that a good bibliography would *'show you've done some work'*. Other students also mentioned the significance of 'effort'.

Selena said that at school it was quite straightforward:

> *'if you put in a lot of work, you get an A, if you put in quite a lot you get B, not very much a C, a D if you don't put really any'*

Even though she recognised that effort was not all that mattered, she still sometimes put her faith in it. Speaking about her dissertation she said:

> *'I'm not sure what mark it'll get, [but] in terms of my working hard and stuff, yeah, I worked very hard ...'*

Salim considered that writing style and presentation affected marks significantly and this was why, even with more effort, he would not get better marks in his essays:

> *'obviously some people naturally can write very well and ... even if I spent hours and hours doing an essay, I could not get something that someone else in my class could, because they're just a better writer.'*

Briony expected that she might not do well in her essay because, although she was '*quite good*' at finding information, she was not good at '*actually putting it into words*'. Shahira was also concerned about her ability to put an essay together. She said that she had discussed one particular essay with a lecturer to obtain feedback and, interestingly, all the points that she could remember from his comments related to writing and presentation:

> *'he said my sentences were too long, and sometimes were difficult for him to understand, and also, if I made references to certain terms ... he asked me to explain what I meant.'*

Although Salim did not expect *high* marks, he seemed confident that he understood well enough what was required and would be able to 'do OK':

> *'in an essay you can write a load of facts down, do a bit of analysing and you'll get a 2:2'*

Becky knew that she had not done a good essay but was quite sure that with more effort she could have done so:

> *'I could have got 70% on it, or maybe a little bit more, without any trouble, just with enough work, just putting enough work in, I think it would have been relatively easy to get a good mark'*

4.3.3.2 *Organising*

Table 13: The organising experience of production

Overall aim or intention
To produce a good assignment and learn something about or understand the topic involved
Role of information
Is guided by the information resources acquired and is unlikely to do additional information searching in the production phase Incorporates information and ideas from a range of information resources Presents a range of information, such as different views or evidence, in an organised way Likes to have a reasonably large number of references
Structure
Undertakes basic planning of the assignment and links information resources with specific sections Works on sections rather than linkages or flow between sections Is aware of the need to have an argument, theme or viewpoint but is not clear about how to put this into practice Writes a conclusion at a late stage and this may be in the form of a summary, an afterthought or personal comment, not closely related to the body of the essay
Audience
No reference to audience
Relationship to assessment
Is conscious of what lecturers want but unclear about what is really meant and whether they have met the requirements May be especially concerned about 'answering the question' or 'keeping to the title'

Students taking this approach produce an assignment by organising the information they have acquired. They do not have a clear overall 'direction' for the assignment, such as an argument, theme or viewpoint, and tend to build up from sections or sub-topics. The assignment is likely to be structured in a generic way such as 'introduction, main body, conclusion'. Students are conscientious about using a range of information resources, sometimes quite a large number, and developing an organised presentation, but are somewhat unsure about the assessment requirements. They feel that they have learnt a lot but may not necessarily produce an assignment that appears coherent.

Students try to gather and assimilate a range of information to help them to understand the topic. A number of Biology students did this to some extent, reading about the 'basics' or scientific background of their topic so that they could gain an initial understanding. Shahira acquires her information and reads before planning what her assignment will cover: *'I tend to*

read before I can structure it and plan what I'm going to do'. The information acquired tends to determine the shape of the essay as Brendan said: *'my whole essay was based on things that I could actually find and use.'* Sadiyya's essays were very much guided by the information resources she had acquired:

> *'for each section I was dealing with in the essay, I was dealing mainly with one source, so to begin with, there was one particular book talking about urban-rural, and then another book talking about the theory of international migration and then a book talking specifically about Algerians migrating'*

She made essay plans after she had done her information acquisition and reading. These plans could be quite detailed, as in her dissertation:

> *'once I was clear about what I needed to do, I would then list the things that I had to mention in the chapters and, in fact, for the chapters that I'd already done all the reading for ... I managed to even put which pages I had to do, you know, which books I had to refer to, for which areas.'*

Usually Sadiyya used a substantial number of information resources:

> *'basically everything you say has to be backed up by a reference, so obviously depending on ... the substance of your essay, that'll obviously stipulate how many references you have. I know for the summative essays I did last year I think my references averaged out actually at almost forty'*

She is referring here to the number of footnoted citations; the actual number of works in her bibliography would have been somewhat less than forty! Some other students, such as Brendan whose approach to writing his essay would be described as 'organising', had over 30 references.

Sadiyya occasionally referred to the 'argument' in an essay but it was not clear that she actually developed an argument or another kind of theme in her essays:

> *'last year I had to do an essay on democracy, basically about [a country] and why it's not compatible with democracy ... and it was really a case of presenting different arguments and then applying again the arguments to the facts available ... a lot of reading was involved'*

Shahira knew that she should develop an argument and was aware that lecturers prefer it, but found it very difficult to do and she much preferred to discuss:

> *'I like the discuss word, I usually try and get one strand of thought and develop that and put other peoples' thoughts into it and counter argue it with that. That's what I usually try and do. Sometimes it can end up a bit woolly'*

When she talked about her dissertation, she described it as a list of topics and did not make any links between them explicit:

> *'I went into the theories of despotism and I looked at the state bureaucracy and Weber's theories of bureaucracy, and compared that and then, oh I went into religion, and then I started looking at, well the effects of religion on the government and their authority and then I looked at European powers'*

Without some over-arching idea or argument, students found it difficult to know how to best organise their essays and tended to see them in sections or sub-topics which they might arrange more or less successfully. Shahira admitted that she '*struggled*' to produce an argument. Her approach was to:

> *'split up the question as much as I can depending on what the question is like, try to put that into categories and usually they ask you to refer to particular examples. I suss the question and then in each section I refer to my example and see how it relates to whatever they're asking.'*

Biology students referred to a basic structure of introduction, main part and conclusion in their essays. Most tried to present the general theoretical or scientific background to the topic first and then give examples or case studies. For some, this was a rather 'minimalist' approach. Briony tried to organise the information she had acquired into '*the correct order*' but did not seem to have any clear framework or criteria by which to sort out the information. Others tried to organise the materials they had found and made a considerable effort to re-present the information in their own way and acquire an understanding of it, suggesting more of an organising approach. Bernadette enjoyed learning about the topic of her essay and she described developing a structure based on a review of the information she had acquired:

> *'I went through each one and made notes, ended up with a wodge of notes, about twenty pages of notes and then started again, looking at it from a different angle with headings and then going back to the notes and seeing which of the notes on different things fitted under each heading. And then I created paragraphs and sections from that.'*

When organising material for an essay, students were unclear about writing conclusions. Some Biology students said that their conclusion was a summary of the essay. When Sadiyya was asked if she would present her view of the topic or question at the end of an essay, she

interpreted this to be about her *personal* opinion rather than her view on the evidence presented:

> *'my opinion may even just consist of, if any at all, you know, the last line or something. It depends really, again on the question and whether or not they actually ask for your opinion. And a lot of the time, in these academic essays, they don't'*

When she did describe a conclusion, it seemed to be based on an idea which extended what she had discussed in the essay or looked more broadly, but which was not closely related to the main body of the assignment. An example of this was an essay on kinship and marriage patterns, which had been quite focused. Her conclusion was then in the form of a much more general statement: *'that we shouldn't apply Western concepts to [the region]'*. Similarly Bernadette chose to base her conclusion on the potential real-world benefits of a scientific understanding of resurrection plants; a relevant point perhaps but not obviously linked to the main substance of the essay:

> *'how it could be used to our advantage to help famine and things like that, so hot climates can grow their own crops, wheat and things like that to make their own bread and staple foods which they otherwise can't have.'*

Students also expressed worries about dealing with a specific title and the perceived idiosyncrasies of an individual lecturer. Shahira said that quite often one lecturer *'wants it in this way and other lecturers may not'*, which she felt placed students in a *'no-win'* situation. Brian found that his essay supervisor wanted different things in relation to structure and layout from the specifications in his module guide. Selena often wondered about whether she had answered the question and felt very unsure about what marks she would get. She said:

> *'you know all [the lecturers'] comments by now, but you don't really know what's going to apply'*

Shahira expressed a concern in relation to several essays about whether she had answered the question appropriately. In one example:

> *'I wasn't too sure what he wanted from it, so I discussed as much as I could about what I knew of the topic, but whether I answered the specific question, I'm not that sure.'*

Briony too was concerned about answering the question posed by her essay title:

> *'I don't tend to stick to the actual question or the title of the paper, I tend to go off on one, you know, bring in information about other things that I'm not supposed to, so this time I'm trying very hard to stick to the specific title'*

However, despite her best efforts: *'it all got a bit muddled up'*.

4.3.3.3 Performing

Table 14: The performing experience of production

Overall aim or intention
To produce a good piece of work and do well
Role of information
Works with and transforms the information they have gathered
May search for additional information or evidence as the work progresses
Uses information as evidence to support the argument, theme or viewpoint of the assignment
Is likely to have a relatively high number of relevant references
Structure
Keeps in mind the overall argument/theme/viewpoint of the assignment
Focuses on the assignment as a whole, with a logical flow, theme or links between sections
Uses critical thinking approaches to handle conflicting, complex or potentially biased information
Knows what kind of conclusion they intend to come to at an early stage, perhaps in some detail
Audience
Tries to demonstrate explicitly to the audience (the assessor) how they have met the requirements
Relationship to assessment
Keeps in mind throughout the requirements for the assignment
Has understood or internalised the expectations for academic work

A student taking a performing approach is focussed on completing the assignment task. In comparison with the two previous categories of experience, students are confident that they understand what is wanted in an assignment and they expect to do well by applying the right process. They work with the information they have acquired to develop an argument or theme, examine evidence and view the production of the assignment in a holistic way, rather than concentrating on sections. They are also likely to get a grasp of the topic and develop their knowledge and understanding. They acquire a number of pertinent information resources and will look for more as the work progresses, if necessary.

Stuart explained confidently what he aimed to do in an essay, expressed with reference to assessment requirements:

> *'An introduction, introducing your argument, introducing the aspects of what you're discussing, and then detailed examination of how you're going to approach it through the main body of your argument, move on to the main body of your text, they want themes, issues rather than just facts, one sort of overall theme that will unite the facts that you use to substantiate what you're saying, and then a sort fluid movement between these points.'*

Sophie had well-developed ideas about argument:

> *'sometimes ... you have this hypothesis and you're trying to prove it with evidence you've found. And sometimes it's quite effective to build up an argument that maybe you don't think actually exists, it's not your argument but to build one up and then to knock it down, and we refer to that as the straw man because then that just goes to show your arguing powers, if you like, that you've looked at the evidence from both sides and then from that you've come to your conclusion'*

The comment also shows her view of the significance of *showing* that you have used the right approaches.

Stuart knew before he started his main phase of writing what conclusion he was aiming at and he used information actively to work towards it, seeking out additional information if needed:

> *'first of all I had to define what I was going to discuss in terms of the relationship and then by that to try and find evidence to support certain suggestions and conclusions'*

Brian was confident that he understood the academic requirements for his essay and would do well. He chose quite a complex topic relating to recent advances in cloning and he had over thirty references to appropriate materials such as scientific articles in his final essay. He used a plan to help him to order the material and keep the overall essay in mind: *'I knew what I was looking through. I knew what I wanted from the start, I had a plan.'*

Stuart quickly transformed information into 'evidence' to support the argument in his essay. His use of information resources was purposeful and focussed. He did not expect to take what he needed for his assignment directly from what he read, but expected to work with it. This was clearly demonstrated when he talked about his dissertation. This was his longest piece of work, using a wider range of complex evidence than in a normal essay. His description showed how he reviewed evidence, was prepared to consider different interpretations, and also paid attention to detail and to making the grounds for his decisions clear:

> *'every time I read, well even re-read what I'd actually written, I thought well that could be interpreted this way or that way, and that's when in a sense, I had to alter a lot of what I'd written to fit what my final decision was because there were aspects that could be construed both ways and so I had to go through what I'd written with a fine tooth comb and then make explicit anything that was slightly inconclusive by saying - while this might at first appear to support the argument there was this, this and this - just because it was, in some ways it was so difficult to decide. First of all I thought, no, then I thought, well yes, then I thought no and then finally I thought, yes, maybe it does and then finally I decided that it didn't.'*

Bridget was a much less experienced academic essay writer, but she tried to systematically review quite complex information and was prepared to make her own judgements about what appeared to be differing claims, even though she realised that she might not know enough :

'I might be basing it on stuff that's wrong, but I'm just basing it on what I know and how I can make an informed decision.'

The conclusion to Bridget's essay was integrated with the main body, which reviewed the state of current scientific knowledge on her topic. In the interview she explained her conclusion:

'they're not too sure in the future what's going to happen and they can't really say that global warming is causing these things ... It's not really a definite relationship, so they're just sort of going around it and saying what they think and they've shown that certain things do cause it, but they haven't really shown how it's going to end up'

Stuart aimed to make clear to the lecturer who would be marking his work what he had done and how he met requirements. For example he said about essays:

'you can sit on the fence in a conclusion, but you have to make it clear that it's a conclusion'

and in relation to his dissertation:

'[I was] making it clear what I was studying, why I was studying it and exactly how I was going to frame it'

Sadiyya also emphasises stating her approach:

'I think you need to specify really the approach you're taking ... when you're saying in the introduction what the rest of it [is]'

Being clear about what you are doing might simply be considered an aspect of good writing. Sometimes students appeared to go further in setting out to impress the lecturer, such as Selena's claim that some students extended their bibliographies. Shahira tried to include journals because: '*If ... you have journals in your bibliography it looks a lot better*'. Brian did not attempt to fully understand all of the materials that he used for his essay. His approach to show 'enough' understanding for the assessor was illustrated when he referred to a difficult concept that was included in his essay:

'I went to short websites which are more at a lower level, rather than sitting down with a full textbook and learning a topic, [I'd] get a brief overview of it so I can at least put it into a context, which would be understandable from the text I'm writing'

He was also the only Biology student who discussed his draft essay with his supervisor and this

enabled him to make changes, having picked up from the discussion what points interested his supervisor:

> *'I took that, crossed that off, extrapolated on that and made that my conclusion, because - how stupid does this sound? I wanted to please the supervisor, because I knew he was marking it.'*

4.3.3.4 Communicating

Table 15: The communicating experience of production

Overall aim or intention To explore a topic or question following own interests To communicate what they want to say on the topic
Role of information Integrates information acquisition and production of the assignment Builds understanding through the assimilation of a range of information, views and opinions Uses information resources in some depth but may not have a particularly large *number* of references
Structure Considers the coherence of the piece as a whole and draws on a range of ideas Views the theme, argument or conclusion as the culmination of the work but it may not become clear until a late stage when their understanding and ideas have developed Sees production as a creative act of communication and may use an idiosyncratic structure
Audience Wants to communicate own views and ideas to the audience (the lecturer) Expects the lecturer to be interested in what he or she has to say
Relationship to assessment Has an understanding or awareness of academic requirements but is guided by the topic and their own approach, rather than necessarily producing a 'standard' assignment

This approach is distinguished from the others by a focus on achieving an understanding or perspective from doing the assignment and wanting to communicate it. There is more emphasis on the content of the assignment and a personal interpretation than on producing a standard piece of academic work. The assignment is developed, keeping in mind the overall piece of work, but the main point or conclusion may not be clear until towards the end of the process. However, it is a personal understanding or interpretation that gives coherence to the final assignment. The student is also likely to link an assignment in one module to ideas and resources used in other parts of the course. Students taking this approach are pleased to talk to other people about their ideas. The approach was found only marginally amongst Biology students. This is likely to be explained by both subject and stage differences between the two groups.

In much of her assignment work, Sophie chose to angle a topic so that it fitted with something she wanted to develop:

> *'It was the one that appealed, you know, that it was something that I wanted to talk about and think about in my own head ... there's always one that pops out at you and you've got to do that one because it pops out to you for a reason because maybe you suddenly start having ideas already and it's not necessarily anything to do with what you've been learning in that module, it can be an idea from personal experience or other modules, that's what I like.'*

Selena was pleased whenever she found herself able to write essays on themes linked to deep personal interests:

> *'personal is a good way to describe it, also it's just so internalised ... lots of people have these sort of certain issues ... that really fascinate them [as I do]... they definitely really are meshed together because otherwise it just seems quite superficial, reading about stuff that you don't really kind of get it, you don't really get your head around it because it's not really internalised'*

Amongst Biology students, no examples were found of this sort related to essay content. Some students did want to write an essay in their own way, however, as in Bernadette's case:

> *'I prefer that to being given headings or anything like that, I prefer to look through it myself and put my own perspective on it.'*

Although she started from her own ideas and regarded producing an assignment as more of an internal process rather than a manipulation of information, Sophie valued reading widely:

> *'[essays are] the time when I learn the most because it forces you to read widely and to think and to assimilate what you're reading to produce something coherent'*

As noted earlier, she did not necessarily have a large bibliography because she thought that what you did with information was more important than how many references you had. She also valued discussing and developing her ideas with fellow students:

> *'this year .. I've found among friends, people have started talking about the subject in their free time and exchanging ideas ... in a pub context sometimes even, people will be talking about the work'*

Sean said that, in general, he was much more concerned about his personal understanding than his assessment performance but his understanding developed through reading and working with the information:

> *'for me the essay is more for my own understanding and what is the issue involved and it's the thinking and trying to present these ideas and trying to kind of sift through them and come through to one standpoint or another'*

His dissertation was a good vehicle for doing this and, although he felt he came to a clear conclusion at the end, there was a lot of work to be done before he reached his understanding:

> *'when I was writing the dissertation, and someone said - what's it about? I couldn't really tell everyone what it was about because I couldn't separate out all the things'*

Sophie particularly enjoyed doing her dissertation and explained how, over time, she came down to what she really wanted to say from working with the literature and her own fieldwork data:

> *'all the literature I'd read was [saying] this symbolises this and this symbolises this and I was more, you know, stripping it right down to a general theory ... there's so much variety in what people say [in my fieldwork data] that you can't make general theories but I was just, saying through all the different meanings I can conclude ... it was sort of cutting it right down to be able to make a statement'*

Sophie was confident that she understood the academic criteria and standards which would apply to her writing. She tended to prefer a more personal approach, despite drawing upon academic literature:

> *'the readings were about certain cultures or peoples whose values exemplified what the title was talking about so you'd be using those cultures to illustrate what the title was getting at. And then we were asked to look at a more general text, so I was basically using his ideas as the focal point and then using the ethnographic examples to illustrate that, but ... I happened to be very inspired and I came up with some very good analogies that the lecturer liked that were inspired by previous Anthropological knowledge'*

Selena was less confident and indeed sometimes very worried about whether she was meeting the criteria or 'answering the question', but when she did feel confident about how to approach an essay she felt able to blend what she wanted to say with academic requirements:

> *'you just write what **you** want, and as long as, basically there's these sort of criteria, it has to be grounded in classical anthropological theory, well it doesn't have to be but I always think that's best, and it has to have your own research and you have to draw conclusions.'*

Brendan risked writing his essay in a way which might not be exactly what was required because he followed his enthusiasms:

> *'I touched on lots of little things, which is quite a dangerous thing to do when you're writing an essay, because you can just not put enough detail into any of it, but absolutely everything I did I found really, really fascinating.'*

Sophie mentioned at several points that she hoped the lecturer would 'like' her work. She expected lecturers to be interested in what she had to say, not just in how well she had

performed the task. When writing her assignment she said: *'I put myself in the shoes of the person who's got to read it.* Brendan also thought about the lecturer reading his essay and wanted them to find it interesting though he did not expect them learn anything new from him. He included illustrations because:

> *'I don't think anyone really particularly likes to sit through three thousand words without looking at pictures or anything'*

Biology students were more likely to consider whether their audience would be interested in their work when they had to give talks to their fellow students than in relation to essays. Bethany thought about her audience when she chose the subject for her talk:

> *'I've chosen a topic that will appeal to the majority of people ... people can relate to it, I think.'*

Briony wanted her fellow students to understand what she talked about. Having to think in that way made her feel that she herself learnt more from the talk than from the essay in the same module:

> *'when you're telling other people, you've got to put it in a way so other people can ... understand ... I actually really enjoyed doing the talk rather than the essay, I found it a lot easier to understand and I found it a lot more interesting as well'*

Sophie wanted to produce something that was her own; that she could '*contribute*'. In previous years in her course, she felt she had been forced to 'churn out' standard essays:

> *'I find that a waste of time, I don't know. How is it any different from what's been done before? I prefer to be producing new things'*

Selena was very pleased to produce an essay which she saw as original and compared it with more standard approaches that she used on other assignments:

> *'it was quite original, I mean I hadn't read it in any other books or anything, because sometimes, I don't really like doing it but it's easier just to follow a set sort of form and just make it your own, but this was my own ideas'*

Sean, as he approached the end of his degree course, was becoming more aware of his need to produce something worth communicating:

> *'I don't feel I can just look at books and just write stuff that people have already written ... because it seems a bit pointless, so I feel you've got to have something quite original in there for it to be worthwhile writing anything'*

The idea of contributing something new and original was not found amongst Biology students.

Beatrice tried to be 'original' in relation to how she presented her essay:

> *'I love writing the essay and wording it and ... I like to try and be imaginative with my English and try and be a bit different.'*

4.3.4 Variations in the experience of outcomes

Table 16: Experiences of outcomes

Marks/grades	**Learning**
Passing Getting a good grade	About the subject content About processes or ways of working in the subject
Satisfaction	

Three categories of outcome were determined and all students had some interest in each of them. All students have an interest in their marks and sometimes expressed it strongly:

> *'at the end of the day you're looking towards what mark you can get out of ... any essay'* (Stuart)

However, no student appeared to be *solely* focussed on marks and some of the effort they put into their assignments, or their reflections on completed assignments, were directed towards learning and satisfaction rather than marks.

Students on the whole said that they learnt a lot from doing assignments, that they understood the topic, and often developed more interest in it. For example, Beatrice said that she could quite happily *'talk about all the different types of symbiosis'*, whilst Becky could *'talk about aphids all day'*. Sophie gave a very specific example of what she now understood after one essay: *'I proved to myself that I have grasped the concept about transition'*.

Another outcome was the direct use of what had been learnt in future work on the course.

Shahira used her knowledge from essays for exam revision:

> *'I look back at past essays and use those for the exams because I know most about that, obviously, it'll be in my memory.'*

Bethany questioned whether the knowledge she felt she had gained would be useful later in her course and said, without very much conviction:

> *'It's kind of broadened my knowledge and I might be able to use the information I found, perhaps, somewhere else in my course'*

Learning about academic processes and ways of working was also a valued outcome. Bridget valued the skills she had developed more than the subject content:

> *'it's more beneficial for me being able to understand these articles and knowing where to go and know where to look for them, and how to plan and get a project on to paper ... I don't think not knowing huge amounts about coral bleaching [would] affect me.'*

Sean was pleased because he felt he had improved his skills in writing and structuring an assignment from doing a recent essay. Stuart gave an example from one essay of how he'd learnt new things about academic approaches to research in a particular discipline:

> *'it was really more involved with actually the way the studies were carried out ... rather than the subject itself, which is something I've not really come across before'*

On occasions the learning included a change in perspective or personal insight. Sean referred to this in relation to his dissertation:

> *'I did have kind of set opinions, which I did actually start to question in another area, so yeah, it did make me think quite a lot about what I was doing'*

Sadiyya also gained some new perspectives from doing her dissertation:

> *'I've had experience of both cultures and it's actually an eye-opener for me as well because there's certain things I have been through in my lifetime that at the time didn't seem to make sense, and sometimes, OK, I was just looking at health issues, but even with that I found that I could look at things slightly differently'*

The issue of feeling satisfied with the assignment produced could be distinguished from both 'getting a good mark' and 'learning something'. It was indicated by a number of comments such as:

> *'I'm satisfied if I've finished it because I don't really like to hand in work that I haven't finished properly' (Sean)*
>
> *'even that essay that I don't think was very good ... I don't know if I really answered the question in a very coherent way... But definitely everyone feels a sense of satisfaction' (Selena)*

'I'm happy with the final result, you know, the final essay' (Sadiyya)

'I thought it was a masterpiece to be honest, I was really pleased with it' (Sophie – dissertation)

The relevance of feeling satisfied is shown even when students were *not* happy. Salim preferred it when he felt satisfied even though it was not always the case:

'Sometimes I feel I've done a good job and other times it's, oh thank god that's finished, I really couldn't be bothered to do any more of that and ... if you've actually sat down and done it you know, from the start, and also done everything else then it feels much better'

Students normally put a lot of effort into assignments and the sense of satisfaction in having produced the final piece of work was often strong. Brian said, with a strong sense of achievement and satisfaction:

'I've had to learn from scratch concepts I've never heard of before in my life ... and now I've written 3,500 words on it'

4.4 Taking stock

Marton & Booth (1997) provide a set of criteria for judging the quality of categories developed in a phenomenographic study. These are: relevance; distinctiveness; logical relationships; and simplicity. The categories presented here have a very clear relevance to information literacy practice since they cover the dimensions of it that are used in many definitions. Each category is quite distinctive and, although there is always some blurring at any boundary, can readily be distinguished from each other. A criticism could be made that perhaps more categories could have been derived but, based on Marton & Booth's advice that the number of categories should be as few as is feasible and reasonable for capturing critical variations, I believe that these categories are adequate. The logical relationships between phenomenographic categories is usually in the form of a hierarchy, indicating increasing complexity, inclusivity or specificity of experience. Such a hierarchy is not always obvious in the categories here, but this may have some advantage. It has been argued that such hierarchies derive from external value judgements (Haggis, 2003). Limberg (1999) believes that different experiences should never be considered to be wrong, but may be more or less effective in varying circumstances. Whether this is true for the experiences described here will be further explored with respect to autonomy in learning.

The information literacy experiences presented share some characteristics with those reported in previous research. They confirm the complex web of influences on information literacy practice in relation to academic assignments, in what would be considered fairly conventional university course settings. In comparison to studies carried out five or ten years ago, it might have been expected that electronic information would feature more distinctively, especially if we accept that ICT may have transformational power, as discussed in Chapter 1. Lecturers who were interviewed in this and earlier research (McDowell, 2002) generally believed that students' use of information was significantly different as a consequence of the availability of electronic information. However, from the student perspective and in relation to their experiences of learning and autonomy which are of key concern here, electronic information is not mentioned in terms which treat it as qualitatively different to other forms of information. It appears, rather, that electronic information fits into the overall experience of information literacy so that Becky, taking a minimalist approach to information acquisition, values the Web because she finds information quick and easy to obtain using a Web search engine. On the other hand, Sophie values the Web because it enables her to make connections and pursue lines of enquiry in an unrestricted way. Stuart values electronic databases which enable him to go straight to relevant information, whilst Brendan likes to use the results of a database search to scan broadly for interesting and relevant material.

Some of the information literacy practices which were found in other studies re-appear here. The most obvious and direct correspondence with previous research is found in the task-centred, minimalist categories associated with surface approaches to learning. There are also categories here depicting information seeking which is narrow and targeted and other approaches which are broad and diffuse. Differences are identified in the extent to which focus or internal and external coherence develop through assignment production, which also arose in previous work. The data here emphasise the internal or learner-centred perspective, rather than the external observables of information literacy practice. This enables the examination of connections and distinctions; for example between focus as the narrowing down of a search

through skilled use of search tools, and focus as the use of a guiding framework for developing meaning.

The level of detail here has enabled categories representing variation at each stage of the information literacy process to be developed. The four stages are a useful analytical device and have enabled the data to be presented in such a way that it is clear what activities students are talking about. Nevertheless, to proceed to a further level of interpretation and abstraction, in the next chapter the stages are combined into information literacy pathways. The data presented here also provide more detail than is available from previous research on the thinking and decision-making processes of students. Whilst other studies have identified, for example, the significance of task-centred or learning-centred approaches, it is possible to see here how there is a constant interplay between a variety of considerations: getting the assignment done and studying something interesting; making sense and making an impression; playing safe and taking a risk. The experience of information literacy and autonomy as a process of constant negotiation is explored further in the next chapter.

Chapter 5

Negotiating information literacy pathways

5.1 Introduction

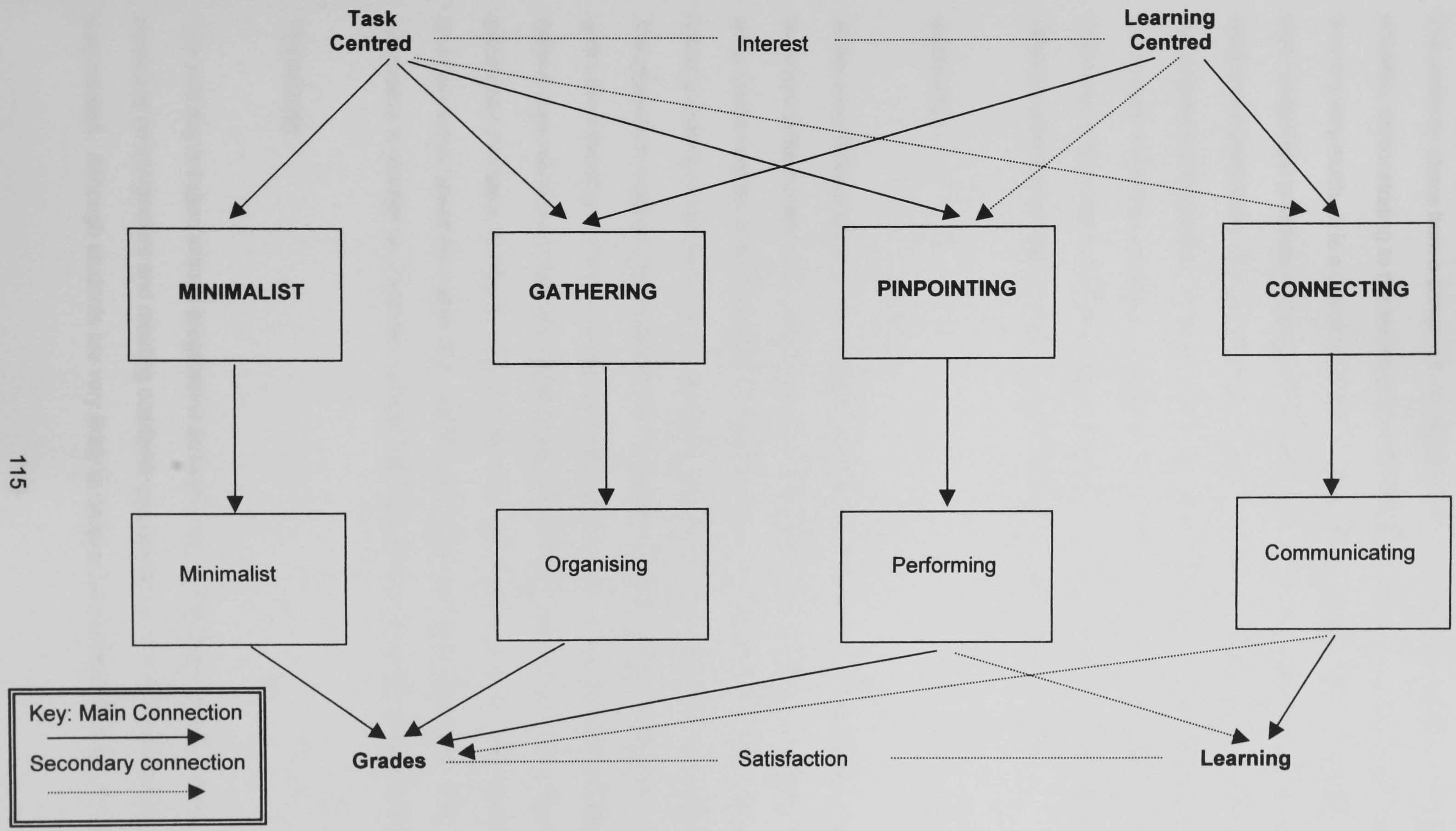
Experiences of information literacy practice which are significantly and qualitatively different have been identified from the data and presented in detail in the previous chapter. This chapter puts the process back together as a holistic experience in the form of *information literacy pathways*. This can be justified on the basis of practice by other researchers and the logical connections between experiences at one stage in the model and experiences at other stages. In addition it is empirically justified by considering the student perspective, where 'doing an assignment' is seen as integrated activity, even though the student may be doing different things at different times. The stages are an analytical device within which to present students' experiences, rather than the way in which students themselves view the process. Study of the research data from an individual student perspective also shows consistent patterns linking the student experience at one stage to that at another stage. For some students these patterns, here called pathways, apply across a range of assignment activities that they described in their interviews. For others, a particular pattern emerged in one instance and not in another. Categories, even pathways, can reify real-life experiences and fail to capture their fluidity and instability. After a brief introduction to the pathways, the experiences of two students, Bernadette and Sean, are described in order to illustrate the complexity of their experiences. Information literacy pathways are then examined in terms of relationships between the experience of information literacy and autonomy as a learner; especially subject-matter autonomy.

5.2 Information literacy pathways

The four information literacy pathways proposed are: minimalist, gathering, pinpointing and connecting. They are named on the basis of the information acquisition stage within each pathway. This is illustrated in Figure 5.1 and then summarised briefly as a context for reading

the two descriptive accounts of student experiences. Further details of the acquisition and production stages, as listed in the tables in Chapter 4, are drawn together for reference in Appendix 27.

Figure 5.1: Information Literacy Pathways



Minimalist

This pathway stems from a concern to complete the academic task as quickly and easily as possible, demonstrating to the assessor that the task has been done, without necessarily learning very much. It is a classic example of a surface approach to study. The pathway is task-centred and proceeds through a minimalist approach to information acquisition and assignment production. The process has a flavour of 'cut-and-paste' in terms of selecting and rearranging the information obtained, with limited personal transformation. The main outcome for students is the mark obtained, although they would prefer to feel some sense of satisfaction by having, in their own terms, done a reasonable job. This experience is centred on the student's own needs within a study context, with little interest in subject matter.

Gathering

At the core of this pathway is the student's aim to find out about or understand the topic in order to complete the assignment. The starting point is equally task and learning centred, linking a good understanding of the topic with the production of a good assignment. This leads to a broad gathering of information in the acquisition stage, which is undertaken conscientiously. The production stage is determined by the information obtained and its organisation. However, unlike the minimalist approach, students reorganise the ideas and information and presents them in their own way. At the end of the assignment, the student likes to feel a sense of satisfaction in relation to having completed the task and understood some new material but is most concerned about the marks and uncertain about how well they have done. This experience is centred on subject knowledge within the context of course requirements.

Pinpointing

This pathway is based around progression through a structured, well-defined process of producing an assignment and meeting academic requirements. The primary starting point is task-centred. Although students are very likely to develop some understanding, this is a

secondary concern; almost a by-product. The student has a pinpointing approach to information acquisition, defining information needs and using information searching skills as efficiently as possible. This is followed by a performing approach to assignment production, using skills in critical thinking, use of evidence, academic writing and so on, to produce an assignment which has an argument, theme or viewpoint, giving it some coherence supported by evidence. At the end of the assignment, the student feels a sense of satisfaction in having clearly demonstrated that they have done what is required to a high standard and expects a good grade. This experience is centred on the requirements of the study context and the active role played by the student in managing them.

Connecting

In this pathway the student him or herself is at the centre of the information literacy process, dealing with subject knowledge, and is less concerned about the study context. They aim to follow their own interests, develop their understanding and knowledge about the topic and contribute, in a limited and local way, to the subject knowledge community. The primary initial concern is with learning. Students undertake information acquisition as a process of connecting, following trails of ideas and links from one source to another. This goes on at the same time as the production process, which is about synthesising and communicating their ideas. The end point of the process is a personal sense of understanding within the subject. Students gain satisfaction from this achievement and through the responses of other people to their ideas. Grades are relevant, but not a primary concern.

5.3 Students' experiences of information literacy: two examples

The purpose of these examples is to show the variability within an individual's experience, as opposed to variation drawn from all students included in the study, and to illustrate the range of influences which constitute his or her information literacy experience. The examples of Bernadette and Sean illustrate that an individual's experience does not necessarily allow them

to be neatly categorised, although there is reference to the identified information literacy pathways.

5.3.1 Bernadette

Bernadette's starting point in academic assignments was task-centred, alongside a hope that she would gain some new knowledge and understanding. Her approach to information acquisition was not highly focussed and we could call her approach a gathering one, but she used new information seeking techniques covered in her communications module so there were elements of pinpointing. She tried to cover the topic for her communications module essay, collected information and made considerable effort to put it into a sensible order, which we might term an organising approach to assignment production. At the end of this, Bernadette felt that she understood something new to her, but she was also very concerned to know what mark she would get. In presenting Bernadette's experience here, there are references to the communications module in which she was required to do a 2,000 word essay and a presentation. She also refers to a number of lecture courses accompanied by directed reading and assessed by exam at the end of the semester.

At the time of the study, Bernadette was only in Semester 1 of her second year on a Biology degree course and was being faced with new tasks such as the communications module essay and she was still finding her way. Bernadette had changed course after her first year on a different science degree and so was in her third year as a student. She described herself as more mature and more focussed on academic work than some of her fellow students because of this extra year. In terms of her academic performance, in the semester when the research took place her overall mark across six modules was 59%: just within the 2(2) category. She had expected to get a higher average of about 63%. However, she got a first-class mark in the communications module. Within this, her mark for the essay was 68% and for the oral presentation, 80%.

A theme running through Bernadette's interviews was pressure of time and this affected her decisions and activities. She said that she liked doing academic work but there was too much pressure:

> *'it has been very stressful and not being able to sleep at night thinking I have got so much to do tomorrow, and that has got in the way because again you miss the odd lecture because you need to do your work, you need to get your work in on time and once you've done a lecture you don't ... read it through or anything, it just gets chucked in a pile while you concentrate on the other work'*

In lecture courses and in preparing her essay and presentation, Bernadette tried to cover the material thoroughly and understand it. The specific module context had considerable effect on how she went about this and how she felt. In a lecture course assessed by exam, Bernadette expected to do more than just attend lectures. Most lectures were accompanied by directed reading, often with specific pages or a book chapter identified:

> *'I maybe spend an hour looking through it and referencing it to books and things like that to make sure that it's clear in my head'*

She was reassured to know that she was reading the right things because it reinforced her sense that she was learning and understanding:

> *'it's kind of good for a confidence boost as well because you look at it and think, yeah, I know what that is, and then you might read another paragraph underneath and it might be a little bit different and then you learn a bit more and you just build it up'*

However, she felt very anxious in Professor Cedar's plant physiology module where there was not such clear guidance. It seemed to her that:

> *'You've just got to learn everything that you can about it, which in theory is fine, but the workload this year is hard'*

Bernadette saw it as ideally a good thing to learn 'everything', but this came up against lack of time; a major contextual factor for her. She was also very anxious about exams and did not feel she performed well in them, so the exam loomed large on her horizon: '*everything boils down to the exam at the end of the day.*'

Even though Bernadette saw the communications essay as quite a different kind of activity to preparing for an exam, it was clear that she tried to '*cover*' her topic as well as she could and then organise what she had found. She acquired information materials, making use of the

instruction she received on literature searching, and proceeded by making notes, then condensing and reorganising the notes:

> *'I went through the [books and journals] that I thought would be most relevant ... I went through each one and made notes, ended up with a wodge of notes, about twenty pages of notes and then started again, looking at it from a different angle with headings and then going back to the notes and seeing which of the notes on different things fitted under each heading'*

Bernadette seemed more confident in approaching essays, compared to exam-based courses. She took a risk by choosing a topic she knew nothing about in the communications essay, when she could have chosen one of the topics which had been addressed already on her course. She said: *'I quite like the idea of learning something new on my own'*. There were several reasons why she felt more confident. Firstly she was more in control:

> *'if you're doing an essay or something you can do your best because if you do it wrong you can always go back and correct it, whereas exams you don't have that opportunity.'*

Bernadette also took steps to reduce the risk she was taking with her choice of essay topic. By talking to a PhD student who worked with the undergraduates as a laboratory supervisor, she received reassurance and practical help:

> *'I spoke to him and I said, which one do you think will be the best one to do an essay on? and he said, do that ... he's also given me the name of a couple of detailed books, which is obviously very useful.'*

She also felt that there was a more direct relationship between effort and reward when it came to the communications essay:

> *'it was worth a lot of marks. It made you want to learn more because you knew that it was worth 45%, which is a lot'*

Bernadette said that when she did a lot of work for an exam she was not sure if it would pay off because there could be '*surprises*', whereas she thought it was worthwhile to set aside a week to work on her essay.

It seemed that Bernadette viewed the kind of knowledge required in an exam differently to that for an essay. In an exam, she said: '*you need to know the facts – fact, fact, fact*'. This was clearly a reproductive view of knowledge. However, in an essay she thought that: *'you can't really be marked down for your opinions or anything like that'*. From the interviews as a whole, it is clear that Bernadette did not mean opinions in the sense of unsubstantiated personal views. She saw her subject as mainly '*fact-based*' and felt that you had to present scientifically correct

knowledge. She put considerable effort into trying to make sure that what she wrote was valid, but felt that in an essay, you could write about it in your own way rather than follow exactly what the lecturer or the book said. This element of personal input was something she welcomed:

> *'I think I prefer that to being given headings or anything like that, I prefer to look through it myself and put my own perspective on it.'*

Bernadette was still somewhat unclear about the requirements for scientific essays, but she saw herself as on the way to becoming a scientist and accepted essays as what was required in science, saying: *'it's just how it's done isn't it?'* She accepted her lecturer's ruling on citing Web sites in the essay:

> *'you can't use websites, because it's a scientific essay, therefore it needs to be fact and anyone can write anything on the Internet, that's the argument'*

Nevertheless it was '*frustrating*' because she had found some very useful information on her topic on the Web sites of universities and scientific institutes which she felt she ought to be able to rely upon. However, she rationalised it by explaining that it was worthwhile using Web sites because it helped her to understand the topic even though she could not cite them in her essays. So in a way she bypassed her lecturer's edict but, without realising, perhaps risked contravening another requirement; the plagiarism rule on always citing sources of information. Bernadette was also very positive about acquiring what she saw as skills in literature searching, citation, scientific writing and so on because she would need them later in her course and in scientific work beyond. She said that the communications module had made her feel much more confident about future tasks.

Bernadette was very enthusiastic about her course but said she did not know yet what she was interested in. It seemed that she was very open to having her interest 'captured'. In one module she said: '*I like the lecturer and the way that he presents things and I find it interesting*'. However, she had more personal commitment to environmental issues:

> *'I want to do something that you can see and you might be able to change and it's going to make a difference to everybody.'*

This meant that she cared more about some topics than others:

> *'sometimes I sit there [in lectures] and think - I don't care about this ... whereas I'm doing another module on pollution and I'm really interested in that and I found myself listening because I want to listen, because I want to learn more rather than because I have to make notes'*

She was happy to set out on her essay in the expectation that it would be interesting, but potential interest in the subject was reinforced by other considerations. These included: the nature of the task which allowed independent working; its feasibility, confirmed by the PhD student; the reward for the essay in terms of marks; and her belief that she had a good measure of control over her performance. Nevertheless, once she '*got her teeth into it*', Bernadette became interested in the topic, as is shown by her involvement, which temporarily overrode her worries about time pressures:

> *'although it did take a lot of time, some[times], I'd be sat in the library from lunch time until eight o'clock without realising it, just because it took so, you sort of get absorbed into it, don't you, and [you think] - I want to find more about that, and I want to find more about that - and it just takes over really. It's quite good when it does that.'*

5.3.2 Sean

Sean's usual approach to his essays was underlain by a strong wish to understand for himself and form his own view, even to the extent that he claimed that marks were not very important to him:

> *'I'm not really bothered about my marks because I think, as long as I can understand the issue, that's most important to me ... for me the essay is more for my own understanding and what is the issue involved and it's the thinking and trying to present these ideas and trying to sift through them and come through to one standpoint or another, which is going to help me understand.'*

This stance places himself, his own understanding of the subject and communicating that at the centre, with course requirements of less concern. His comment on exams shows the importance that he placed on formulating his own ideas. Even though he revised by making notes, condensing them, and learning them he said :

> *'I **still** need a lot of internal organisation before I can put anything down, so normally probably I'll be very slow and not complete the questions properly.'*

Placing Sean's approach into the identified categories, we can identify that he started off with an intention to understand and that gaining understanding was the most important outcome for him. His approach to information acquisition was mainly a connecting and gathering one and in his essay production there were elements of both organising and communicating approaches, so his experience did not sit solely within one information literacy pathway. Sean generally

achieved good marks on his course and his final degree classification was 2(1). His generally good performance may have influenced his claim that he did not worry about marks.

Most of Sean's academic work was in the form of essays, although he also did some language study where translations were required. In almost of all of his modules there were two essays: a formative essay which students were required to submit but which did not contribute to the end of module grade, and a summative essay which did count. In addition, most modules had an end of year exam. Sean was in his final year and a major element of his academic work was his honours dissertation, a 10,000 word assignment based on independent research. He obtained a first-class grade for his dissertation.

Sean read widely for assignments. He said that the purpose of wide reading was for him to develop understanding and, in a similar way to other students taking a gathering approach, he said he needed to use of lot of materials to gain a sense of security:

> *'in terms of your own understanding of the question ... with the more references you have, the more, hopefully, you understand it.'*

He also regarded it as being respectful to authors and those who worked in the subject. He liked to read widely and to use direct quotations because that *'makes it more inclusive for other people'.* There was a tension in Sean's approach of balancing his own interpretations, thoughts and interests with those of others more authoritative in the field than himself.

Sean's respect for other people's ideas gave him some problems when writing essays. He knew that lecturers liked to see a clear argument, but that concerned him because:

> *'you're necessarily excluding arguments, you're excluding opinions that aren't in line with your argument'*

There was, he said, a recurring problem for him in balancing what he thought was right and what lecturers wanted:

> *'I think it's in my nature to always look at different arguments and not necessarily come down on one side whereas if I'm doing an essay that's what I have to do ... whenever I write essays, it's the same thing every time, I have to start and then I'll have to refine it and go one way'*

So Sean covered a broad range of views for his own understanding and then tried to re-formulate what he had done in the form an essay with an argument, to meet course requirements. However, he tried to develop an argument which he could personally accept:

> *'it's what seems to be a good analysis of it, so I guess in that way I see it as being right ... but it might not necessarily* ***be*** *right, but normally I don't try and argue just for the sake of arguing a certain point'*

It is not perhaps surprising that it took him a long time to prepare and write an essay.

Sean mainly saw the lecturer in the role of assessor when it came to academic assignments. He was usually satisfied with the understanding he had gained and he hoped that his essays were '*coherent and good*' from the lecturer's point of view, but he was not sure and left the final judgement to them: '*that's for the lecturers*'. Often he did not feel very confident and that seemed to stem from a concern that he had not covered enough*: 'you have the whole of reality, if you're writing an essay, to try and put down in 2,000 words'.* There was a lot to cover and he seemed concerned about missing something:

> *'there's so much stuff written that you could never read all the books that are written on that so you'll just get a few, but the thing is that you don't really know ... which books are going to be the most useful, which are going to be the most relevant, or where the information [is], because you normally just have titles of books or titles of articles'*

Sean really needed deadlines to force him to move on and actually write his essays*: 'you might get certain books and then you just have to use what you have'.* One thing that helped him feel more confident in his dissertation was that no one had written about the specific topic he was studying, so in that sense there was less to cover. Although he used academic information resources too, to a large extent *'everything is based on my own fieldwork'.*

Sean tried to link his academic studies with other aspects of his life. This was something he had struggled with at times in his course but, because of Dr Elder's approach, he saw no conflict within the AAS module:

> *'I think it's good if one can bring in personal knowledge. It's just so that you don't have these two kind of concepts ... two opposed sets of knowledge, one set of personal experiences and one academic knowledge which doesn't really bear much resemblance, and that's what I quite like about [this module] in particular, it's drawing a lot on experiences that people have had'*

He chose to do his AAS summative essay on a topic to do with migrants because it was something he wanted to explore. He planned to work with asylum seekers after he had finished

his degree. However, he ran up against practical constraints when writing the essay due to time pressures. He had to change his usual approaches and he actually spent less time accessing materials and reading, yet he felt very pleased with the essay. What he did instead of such extensive reading was to use personal experience as *'case studies'* and he undertook a small exercise where he gathered first-hand data from a group of migrants. The idea to do this stemmed from Sean himself, but he checked with Dr Elder and she encouraged him to pursue this approach. He also said that his dissertation experience made him think about this later essay in a new way:

> *'I don't feel I can just look at books and just write stuff that people have already written ... because it seems a bit pointless, so I feel you've got to have something quite original in there for it to be worthwhile writing anything'*

This seems to indicate, in terms of categories, a further shift from a gathering pathway towards a connecting one. Sean had gained enough confidence to at least try something a little different but he thought that *'it could backfire'* in terms of the marks.

When choosing his dissertation topic, Sean balanced his own interests against practicalities and what was required of him. He pursued the idea of a topic in ethnomusicology but decided that he was not sufficiently familiar with the subject to work in that field. He dropped another idea because he thought that the outcomes might not meet the course requirements. Finally, he chose to study the experience of people with disabilities in a particular community. He started by reading extensively within one particular perspective but then abandoned it. He did this because he did not think he would, in practical terms, be able to follow that line of approach in his empirical research and secondly he wanted to ask different kinds of questions:

> *'I wanted to do more [on] how the community interacted ... how the community functioned and the patterns of movement within the community ... and where people would meet up and how and which people'*

The dissertation was an important personal project for Sean and he said that it was significantly different from other academic tasks on the course:

> *'it was my own fieldwork so I really felt it was totally my own work and there was nothing had been written on this subject before, not specifically. I'd done all this research so I felt like I really wanted it to go well and needed to do well.'*

But despite there being very little written, Sean said he had a huge bibliography. He explained that his research could be regarded as a case study and he had to use a lot of academic

materials so that he could use theories and methods of analysis devised by others. Although it was original in one sense, in another it was not, which was something he had thought about quite a lot:

> *'I was employing certain [methods of] analysis, which had really been thought out by other people, I wasn't doing anything new or anything, but I was just using that in the situation which no one had looked at before. So in that sense it was new, but in that sense it wasn't that new because all the ideas and stuff were already there.'*

Sean found most parts of his course interesting but he commented especially on modules where there were '*a lot of big ideas*' :

> *'things which I'd never really studied before in depth and different things that made me think quite a lot, so it had quite a big impact'*

He also felt that his way of thinking had been permanently affected by his studies:

> *'it's only one way of looking at things but it's set me thinking one way that I probably wouldn't have thought before, and helped me understand some things that I probably wouldn't understand. So I think I'll always have that and I'll always use that, indefinitely'*

His plans for after his degree course were to get away from academia. He said that he had enjoyed being a student at first but now he felt that the student context was limiting, that it '*sets me apart*' and he wanted to become more engaged in other aspects of life.

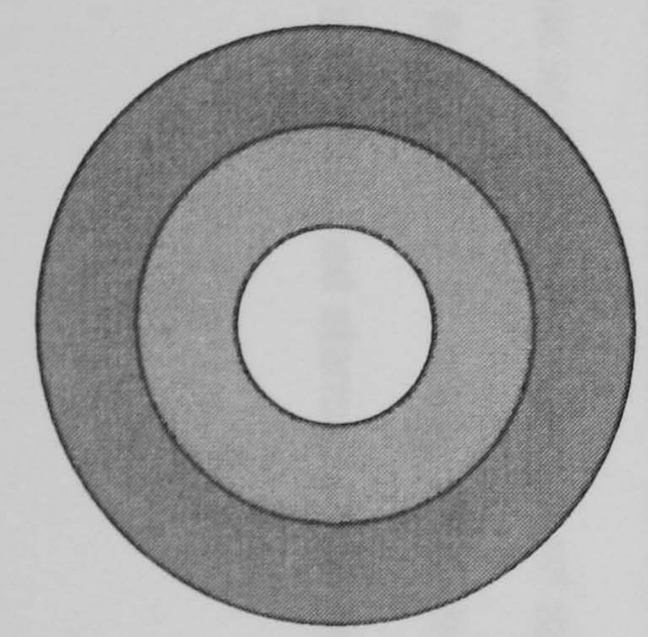
5.4 A conceptual synthesis: information literacy and learner autonomy

The experience of balancing a variety of possibilities, inclinations and constraints, illustrated by Bernadette and Sean, is found in all of the students in the study. Their experience, on a day-to-day basis, is one of negotiating ways to act. The model of the negotiation process proposed here is based on the key constituents of self, knowledge and context. The role of the *self* in the negotiations relates to the ways in which the student's own needs, interests and aims play their part in the practice of information literacy. One significant element is the extent to which information literacy is seen as an 'internal' process of developing knowledge and understanding where the individual is centrally involved, or as an 'external' process of manipulating information. The *knowledge* component refers to the student's stance towards subject knowledge, both in terms of its content (facts, ideas, theories) and processes. It includes the student perspective on the right ways to handle and manage subject knowledge and on the standards that may be used to judge subject knowledge. *Context* is used to indicate the

relationship between students and the study context in which they are based. The four pathways are illustrated in Figure 5.2

Figure 5.2: Negotiating Information Literacy Pathways

Gathering: Acquisition of knowledge in context

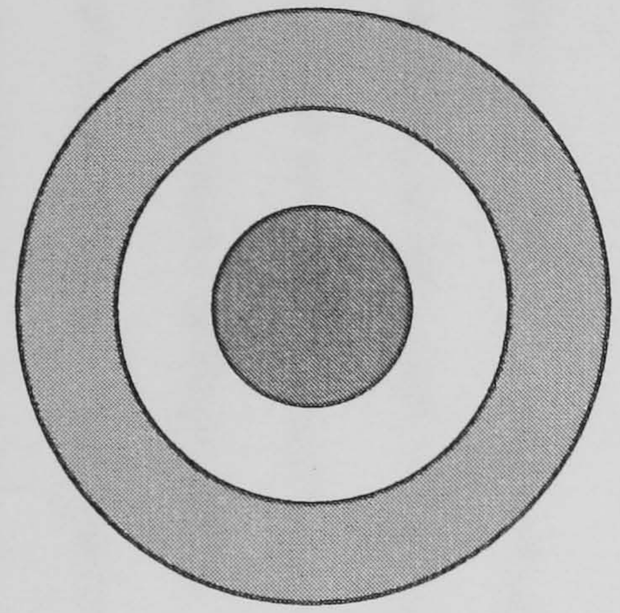


Knowledge: The subject matter is the primary focus in the students' approach. Their purpose is to understand the subject.

Context: students consider the immediate context in relation to how they are expected to demonstrate the knowledge they acquire.

Self: students' own needs and interests are relegated to the periphery and are not considered very important

Connecting: Personal development of understanding

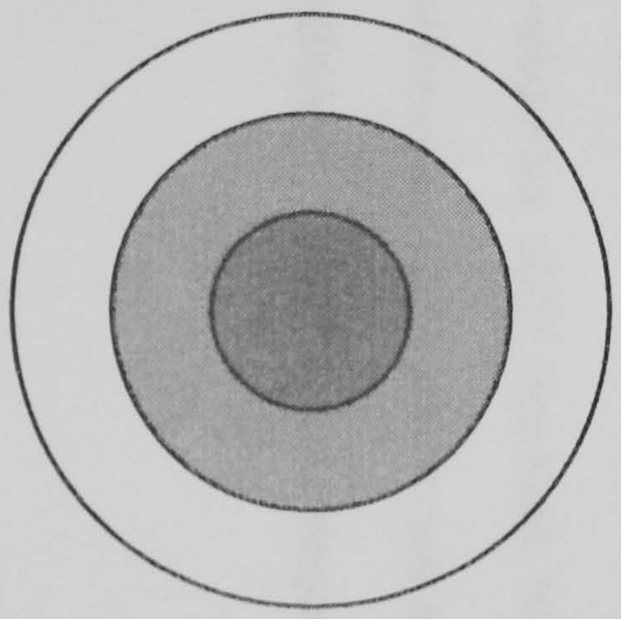


Self: Students focus on their own needs, interests and knowledge

Knowledge: The student aims to understand and make sense of subject knowledge.

Context: Requirements of the context are left to take care of themselves to a large extent. The context is viewed more broadly than just the immediate study context

Minimalist: Self-in-context

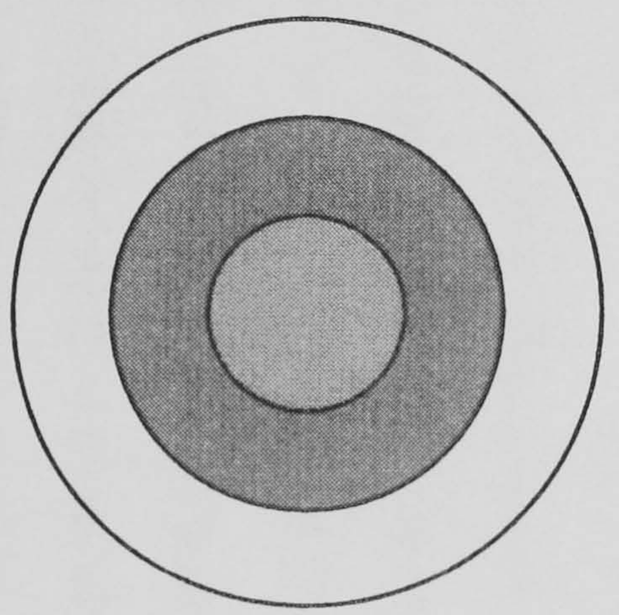


Self: own needs to minimise effort and to disengage from the task are prioritised

Context: student considers the immediate context and what needs to be done.

Knowledge: Issues about the subject and learning in more general terms, are relegated to the periphery. These do not play an important role in student's actions and thinking.

Pinpointing: active management of context



Context: Students focus in detail on the requirements of the task set.

Self: The individual plays a very active role in managing the process and views it as personally important.

Knowledge: The subject matter is manipulated as part of the process and, of itself, is a lesser consideration.

Key: Self | Context | Knowledge

This approach gives an insight into the concept of 'focus', which has proved problematic in the study of information literacy. In Chapter 2, this was clarified, and Table 3 is reproduced here.

Table 17: Four dimensions of focus in information literacy

	Internal perspective	External perspective
Process	Using anticipatory frameworks, seeking meaning	Narrowing down, targeting
Outcome	Achieving understanding	Coherent presentation

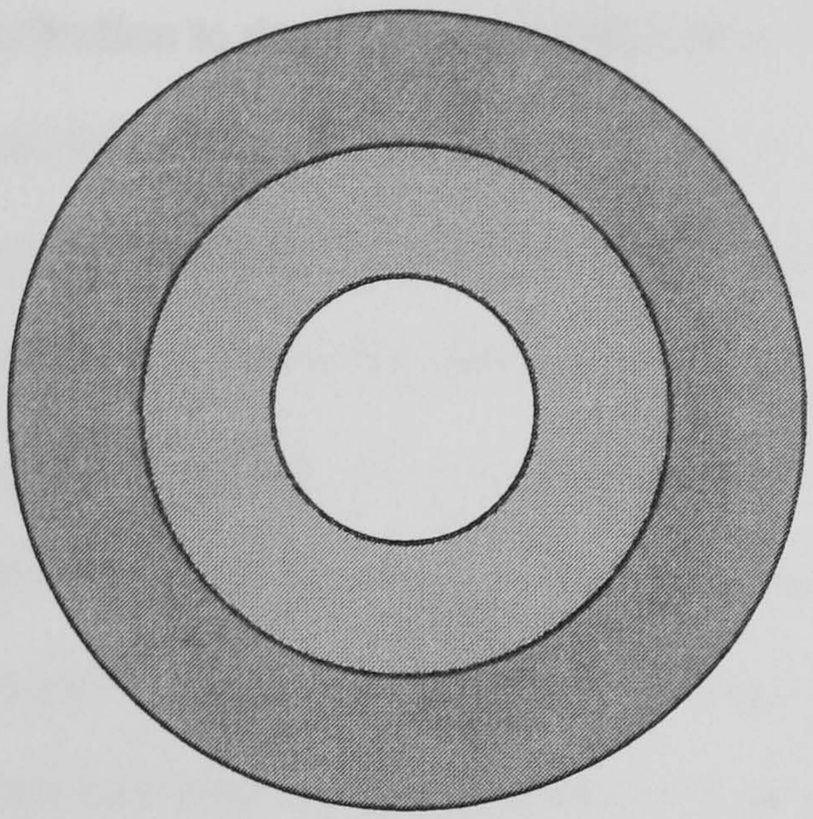
A major dilemma stemming from previous research is how to interpret approaches to information-seeking or information literacy which are broad, divergent and flexible compared to approaches which are narrow, targeted and planned. These two general approaches or styles have been interpreted as different stages in a process; for example, Kuhlthau's (1991) suggestion of exploratory and focussed stages of information-seeking. A broad approach has been linked to quantitative concepts of knowledge where information is accumulated for re-presentation, compared to a more focussed approach where information is used to construct understanding (Edwards & Bruce, 2002; Limberg, 1999, 2000; Laurillard, 2002). On the other hand, building understanding has been seen to require openness to new ideas and a broad, rather than focussed, approach (Entwistle, 1995; McGregor, 1994; Seamans, 2002). A highly focussed approach has sometimes been seen as indicating task-centred rather than learning-centred approaches (Burdick, 1996; Heinstrom, 2002; Seamans, 2002). Burdick (1996) suggested that a broad approach might represent a different but equally valuable way of learning so long as students had a learning-centred approach and were personally engaged in the subject being studied. However, whilst broad approaches might indicate intrinsic interest and commitment to the subject, they are seen as less appropriate in meeting the requirements for academic work than more focussed approaches (Heinstrom, 2002; Hounsell, 1997). There have been suggestions (Burdick, 1996) that broad and focussed approaches may stem from connected and detached stances towards knowledge (Belenky, 1986; Baxter Magolda, 2002).

Broad and focussed approaches have only been linked implicitly to experiences of autonomy but this will now be explored in more depth, considering the negotiation of information literacy pathways. Two of the information literacy pathways, gathering and connecting, are characterised by breadth in information seeking and the use of a broad range of materials and ideas in assignment production. From the external perspective it might be hard to make distinctions between them but from the learner perspective they are very different. This is also the case for the two narrow pathways, minimalist and pinpointing where some aspects of student behaviour might appear similar even though they represent two very different learner experiences.

5.4.1 The Broad Pathways: Gathering and Connecting

5.4.1.1 Gathering

Figure 5.3: The Gathering Pathway



Acquisition of knowledge in context

Knowledge: The subject matter is the primary focus in the students' approach. Their purpose is to understand the subject.

Context: students consider the immediate context in relation to how they are expected to demonstrate the knowledge they acquire.

Self: students' own needs and interests are relegated to the periphery and are not considered very important

Key

- Self
- Context
- Knowledge

Students who experienced information literacy in this way worked hard and tried conscientiously to grasp the knowledge they were dealing with and then to present their understanding. They accumulated as much information as possible and could easily be overwhelmed. Brendan talked about needing to look through the titles and abstracts of '*hundreds*' of articles. Shahira talked about '*reading and reading*'. To some extent this might be associated with quantitative views of knowledge. Certainly, some Biology students saw their subject as largely 'facts'. Social Science students had more developed views and were aware that there were competing theories, perspectives and explanations. Nevertheless, the kinds of approaches that they described when preparing for an essay seemed to be similar to those which have been identified in relation to exams, where a wide range of material is assembled, condensed and ordered (Entwistle & Entwistle, 1992). Since students often associate exams with 'telling what

you know', this suggests that there may be an implicit 'knowledge-telling' approach in the gathering pathway.

Broad information seeking and wide reading in the gathering pathway did not make a strong contribution to developing subject-matter autonomy. Students expected to find the answers 'out there' rather than create knowledge themselves through interaction with information and thus were controlled by the information they found, rather than controlling it. They had little confidence in what they already knew and so did not use guiding frameworks based on their existing knowledge or on questions that they wanted to ask, seeming to start each essay almost as if it was (or they were) a blank slate. Students had to cope with uncertainty which was not resolved through the information literacy process. Reading and understanding were not seen as the hard part of an assignment; the difficult part was writing a coherent essay. Gathering information might therefore be a safety strategy, indicating a lack of confidence in their own ability use resources more selectively and a way to delay starting writing; a much riskier activity than merely reading. Students were not able to state their own view or conclusion on the subject they had been researching. Shahira liked '*the discuss word*' as this did not seem to require her to form a specific view. As a coping strategy, students might adopt a structure for the assignment from another publication rather than developing one from their own ideas.

Gaining understanding was important to students in the gathering pathway. However, they were not sure that they achieved the *right* understanding; that is, the one that the lecturer wanted. They regarded subject matter as content rather than as a process by which knowledge could be interpreted and claims could be made on the basis of evidence. Hence, although Social Science students were aware of the need for 'argument', they had difficulties in actually developing an argument in their essays. The study context was very important, but somewhat threatening, because students could not fully understand it. For example, some saw lecturers' requirements as capricious and arbitrary rather than as having any rational basis. Students were concerned about what was really wanted and worried about the specific wording and implications of the question or essay title. They found themselves unable to determine whether they had done enough or achieved an appropriate standard, even when they generally received

reasonably good grades. Shahira said that her own views of whether she had done well bore no relation to the marks she later received, so she had little confidence in her own judgement.

The gathering pathway does not allow students themselves a significant place within the information literacy process. They kept their own feelings, ideas and opinions out of their academic work, perhaps feeling that they had nothing to say or contribute and did not accord any strong personal significance to academic knowledge or connect it to real-world situations. They were not fully engaged in managing, evaluating and making decisions about subject matter. They found what they read or learnt about interesting but it remained 'external'; something they had to manage rather than something they owned. The way in which the role of the self is important is shown by Sadiyya's experience. In her second year she had received a range of advice and feedback on essays. What Sadiyya took from this advice was: '*that basically everything you say has to be backed up by a reference*'. This shows how her interpretation of the advice maintained the positioning of herself and her own judgements and ideas as peripheral to academic work. It may, in fact, have made her less inclined to use her own views and pushed her towards what Baynham (2000, p. 29), perhaps rather pejoratively, calls a '*docile academic sourcing strategy*'.

Being able to grasp the subject was clearly of personal importance to students, as was getting a good mark. Sadiyya said that she had always seen studying as her '*main thing*', something she was good at. She and other students tried to maintain a sense of themselves as good, competent students and usually felt that they understood a topic even if they did not always express it very well in their essay. Since understanding the material was so important to them, there was probably a reluctance to admit to any difficulty. Sadiyya did not '*dare*' to say she had not understood when she had done a lot of reading. Students accepted their responsibilities to take in the information and knowledge that was required and present their own knowledge and understanding for assessment. They left the responsibility to judge how well they had achieved that to the lecturer. Whilst they were responsible for trying to achieve the correct understanding and presenting it, this was very much an individual matter. They had responsibilities as a student, but not responsibility for the subject knowledge in a broader sense. For example, they

had little inclination to consider how use of their subject might affect people in real-world situations.

If university students are challenged to do more than present knowledge in a structured way, and it is usually part of course aims that they should be, then the broad approaches of the gathering pathway are somewhat dysfunctional. However, this may depend on course requirements. Biology students could do well in their essays by presenting a structured description of a topic. The Year 2 course handbook (p.12) provides assessment criteria indicating that a mark in the lower part of the 2(1) category could be obtained by:

> *'An answer which provides substantial information that addresses the question. Some evidence of additional study. Good communication and presentation skills.'*

This suggests that some Biology students may not yet have been challenged to do more than this and hence were pleased with the work they did both in terms of their own understanding and meeting lecturer requirements. Similarly, Burdick's (1996) students who were satisfied with their broad approach to information seeking and presentation were high school students who probably needed to do no more than write a structured presentation of the topic. Limberg (1999, 2000) suggested that there is no need for focus in some academic assignments which are factual or descriptive. On the other hand, Social Science students did feel challenged to do more, particularly in terms of developing an argument and evaluating evidence. Hence, they felt some dissatisfaction with their own approach and questioned their own sense of understanding, even though they might obtain good grades.

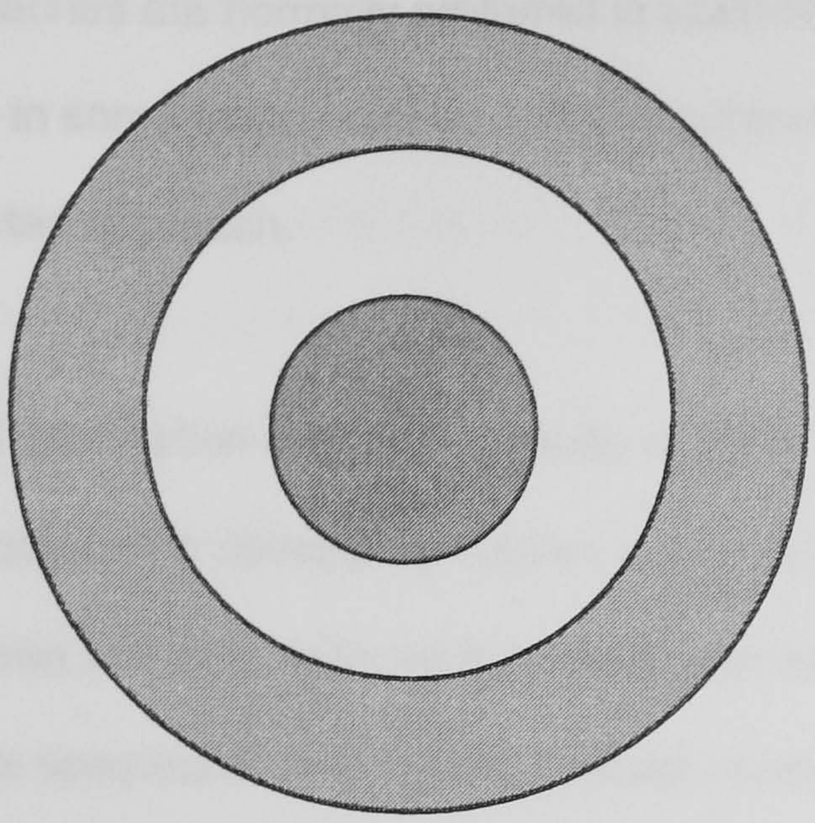
Summary

The gathering pathway involves broad information seeking and use because students do not use guiding frameworks as they set out on assignment tasks but start with rather unfocussed information gathering and reading, aiming to cover the topic. They are likely to have difficulties narrowing down an assignment topic and deciding which material is relevant. Students usually believe that they have learnt something and 'understand', but find it difficult to state their understanding in the form of a main message, theme or argument. The concentration on subject content and the study task minimises the student's own role as an active participant in

the process. Students tend to be controlled by the information they find and the assignment requirements. Their own interests, ideas and judgements may be kept out of their academic work. They have a strong sense of responsibility centred on being a 'good student', but a lack of control, confidence and ownership of subject knowledge suggests a low level of subject-matter autonomy.

5.4.1.2 Connecting

Figure 5.4: The Connecting Pathway



Personal development of understanding

Self: Students focus on their own needs, interests and knowledge

Knowledge: The student aims to understand and make sense of subject knowledge.

Context: Requirements of the context are left to take care of themselves to a large extent. The context is viewed more broadly than just the immediate study context.

Key

Self

Context

Knowledge

In the connecting pathway, students looked broadly and in an open way in order to develop their own ideas and understanding. From an external perspective on students' information seeking, an extended and unplanned exploratory phase, with little evidence of narrowing down the topic, might seem to be inappropriate. However, students taking a connecting pathway were very active and in control of what they were doing. They did not narrow down in terms of information searching because, for them, understanding was something which developed after engagement with a wide range of ideas. Kuhlthau's (1993, p.118) term 'an invitational stance' captures it very well. Like Heinstrom's (2002) broad scanners, students welcomed challenging and interesting new ideas and made connections between apparently disparate ideas and topics. They used a guiding structure to frame their activities but it was a fluid and evolving one driven by: a questioning and synthesising approach; active use of new materials and ideas; and

following trails of meaning. This approach was found amongst Social Science students but not in Biology. It might not be effective in science subjects, since rather convergent and serialist approaches are normally preferred in science, at least at undergraduate level. On the other hand, in some social science and arts subjects, looking broadly and 'reading into' a topic is an accepted approach.

Broad information seeking and wide reading in the connecting pathway were strongly associated with developing subject-matter autonomy. Students shaped an assignment task to their own interests, tailoring it to aspects or issues that they want to explore and think about. Sophie specialised and followed certain interests during her final university year, thus developing her knowledge in depth. She gained a first class degree. A sense of ownership of the subject is key to this approach. Students regarded the subject matter they were dealing with as personally important.

Both the sense of understanding and coherence in essay presentation come from a personal synthesis of issues involved in the topic. A good basis of subject knowledge and academic skills is necessary for this pathway to lead to academic success, but students emphasised making sense of subject matter rather than using generic techniques or skills. They decided for themselves what direction they should take and tried to judge when they had achieved a good understanding or had reached a point where they knew what they wanted to say. However, they were sometimes concerned about whether what they produced would answer the question set or wondered how lecturers would respond to it. Sophie appeared to understand what was required and had done well in previous years of her course by what she described as '*churning out*' standard essays. In her final year she said she tended not to *'do arguments'*: nevertheless, her essays usually received high marks. Selena, on the other hand, retreated from the connecting pathway in some assignments which she found too difficult and where she did not feel she was getting a grasp of the topic.

The connecting pathway required students to have sufficient confidence to deliberately set out on an exploration of a topic which would necessarily involve them in some uncertainty, believing

that they would achieve something worthwhile and coherent in the end. Although they did not know exactly how the knowledge they developed would come together, they were clear about the need for the process. It involved making their own judgements about what was relevant, how things connected and what they meant. This was seen as the difficult part of the assignment. Sean talked about '*fighting*' with the ideas. These students were able to make a clear statement of their view or argument. They had enough confidence to discuss ideas with fellow students and with lecturers even before assignments were completed and saw such discussion as helpful in forming ideas. In some ways, students were risk-takers; prepared to bring in new ideas, connections or speculations that might not be supported in the academic literature they had used. Sophie wrote essays in her own style and said that some lecturers criticised her but she usually '*got away with it*'.

Students regarded the subject matter they were dealing with as important to them personally; a part of their lives beyond the confines of the course, and they linked academic knowledge to personal knowledge and values and to first–hand experience. What they actually understood, concluded, or the statements they made, were therefore important, initially to themselves. Students felt a sense of responsibility to state what they believed to be true and right and they had an emotional and personal attachment to the work they produced. Selena described it as '*internalised*'. They also regarded the subject knowledge as, at least potentially, something which impacted on other people and the wider context. They therefore accepted a need to handle academic knowledge responsibly and they put a lot of effort into trying to come up with an assignment which they believed presented the best synthesis that they were able to produce at their current level of academic knowledge and understanding.

In addition, a shift from a purely student role is significant. Sophie saw herself as '*contributing*' to the subject, for example, in seminar discussions. A sense of having something to say which was '*your own*' or '*original*' reinforced this. For Selena and Sean, this occurred in relation to their dissertations where, because first-hand empirical research was involved, as Selena said, you were the '*expert*' on the topic. Students in this position wanted to communicate and discuss their ideas. Discussing with fellow students was important to all of the students using this

pathway. In Sophie's case, this extended to discussions with lecturers and was further illustrated by her hope that lecturers would find something interesting when they read her essays. This suggests an experience of academic knowledge as partly embodied in the academic or subject community. Students felt a responsibility to participate, although perhaps in a limited way as a student. Participation was as much a benefit as a responsibility since it seemed to reinforce the belief that academic subject knowledge 'mattered' and helped to develop better understanding through discussion.

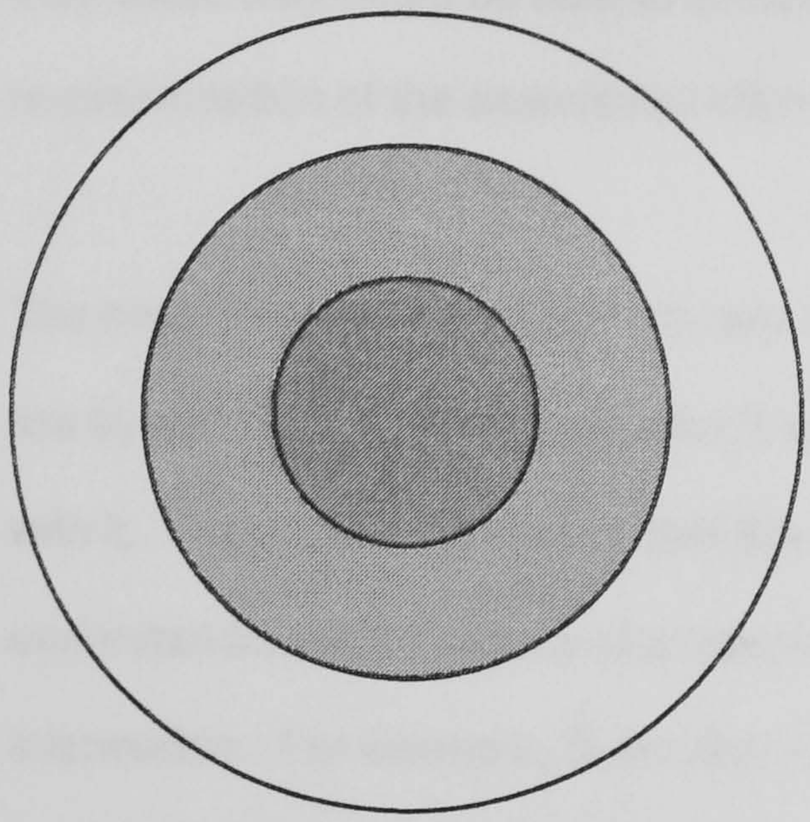
Summary

The Connecting Pathway is broad because students search and read widely in order to develop an understanding of a topic. They use a guiding framework to conduct their information seeking and essay writing, but it is a flexible and emergent one rather than a focussed structure developed early in the process. The intention is to produce a coherent presentation based on personal understanding. The student takes control of the subject matter, is personally engaged and demonstrates a degree of subject-matter autonomy. The study context is somewhat secondary, although all students are aware of the lecturer's role and the need to produce appropriate assignments. Some students may see themselves within the wider context of a subject community. Students have a strong sense of ownership of academic knowledge and responsibility in using it. They also need a strong sense of control and confidence in handling academic knowledge and if this was lacking in relation to specific assignments, they might use other pathways.

5.4.2 *The Narrow Pathways: Minimalist and Pinpointing*

5.4.2.1 Minimalist

Figure 5.5: Minimalist pathway



Self: own needs to minimise effort and to disengage from the task are prioritised

Context: student considers the immediate context and what needs to be done.

Knowledge: Issues about the subject and learning in more general terms, are relegated to the periphery. These do not play an important role in student's actions and thinking.

The process of negotiating autonomy shows students putting themselves first and managing the context to minimise their time and effort. A student taking a minimalist pathway might be seen to be successfully narrowing down the topic of an assignment. Becky appeared to define a suitably precise topic for her essay, but she did this to make it easier for herself rather than with any specific ideas or questions in mind, or any intention to learn about the topic. In fact, she received a low mark for her essay. This was not because her focus was inappropriate, however, but because she failed to meet some other assessment criteria. A minimalist pathway is likely to lead to a narrowing of focus and the use of a limited range of materials merely on the basis of what is convenient and easy to access, rather than because any other guiding

framework is used. In some ways it is a classic surface approach to study. In terms of the outcome aspects of focus, the minimalist pathway was unlikely to lead to development of understanding. The student might produce an assignment that had some degree of coherence. If they were fortunate or clever in using tactics such as borrowing structures from the resources they used, they might be able to achieve reasonable marks without anything more than minimal re-presentation of the assembled information.

The minimalist pathway does not help students to develop subject-matter autonomy since they are by-passing any real engagement with subject content and the appropriate ways of dealing with it. There are suggestions that the minimalist approach was accompanied by a lack of understanding of the nature of academic knowledge and an unwillingness to deal with complex information. For example, Salim did not understand why he should read more, when he would just be reading the same information again. Becky and Bethany preferred not to include a topic in their essays rather than try to sort out material which seemed complicated. It could be argued that these students are, on balance, controlled by the situation and their stance towards academic knowledge, rather than being in control.

There is some uncertainty about the extent to which students were aware of alternatives and making a conscious choice to take a minimalist approach. Salim seemed convinced that he knew what was required and chose not to do it, but some of his comments suggest that he did not really understand academic requirements. For example, his view of knowledge seemed to be at the quantitative end of the spectrum, which is somewhat surprising in a final year social science student. He gained a 3rd class degree. Whilst seeming to be satisfied with 'doing OK', students also gave justifications for why they did not do better. This suggested some lack of confidence or perhaps an attempt to preserve their own self-esteem. Becky said that she had put little effort into her communications essay and *'done it wrong'*, but she was convinced that she could do better if she tried. Perhaps she was right. Salim absolved himself of responsibility for low marks saying that he was not naturally a good writer and would not be able to do better, no matter what he tried to do. Briony explained that she always strayed off the topic in an

essay. She tried to do something about it and stick to the point, but had no confidence that her efforts had made very much difference.

Students were generally quite dismissive of academic knowledge and academic work. When talking about what they did, they appeared to downplay any significance or interest through the use of the words such as 'just', as in, 'I just did this'. Their own activities in assignment work and the knowledge itself were not regarded as of great importance. Although students still found some elements of their studies interesting, substantial areas were regarded as boring or irrelevant. This was simply taken as a given since what they 'had to do' was defined by someone else. When Salim was asked whether he minded if subjects were not interesting he seemed to think it was rather a stupid question and said: '*You're stuck there aren't you? There's not much you can do about it, might as well get on with it.*' Lack of a sense of ownership may have been related to a distancing strategy employed by students to avoid having to try to engage with academic knowledge and processes.

The main sense of responsibility shown by students was to themselves, minimising their time, effort and inconvenience and also avoiding uncertainty and challenge which might threaten their self-esteem. There was no sense of feeling responsible for the academic knowledge that they were using or their approaches to it. In the main, producing what the lecturer wanted and gaining some marks was all they saw to be needed. Short cuts were used where possible. There was no real need to ask whether they had got it 'right' or whether what they were writing was true or correct. They had no reason to think that anyone would actually be interested in what they wrote, since it was just an indication that they had completed the task at an adequate standard.

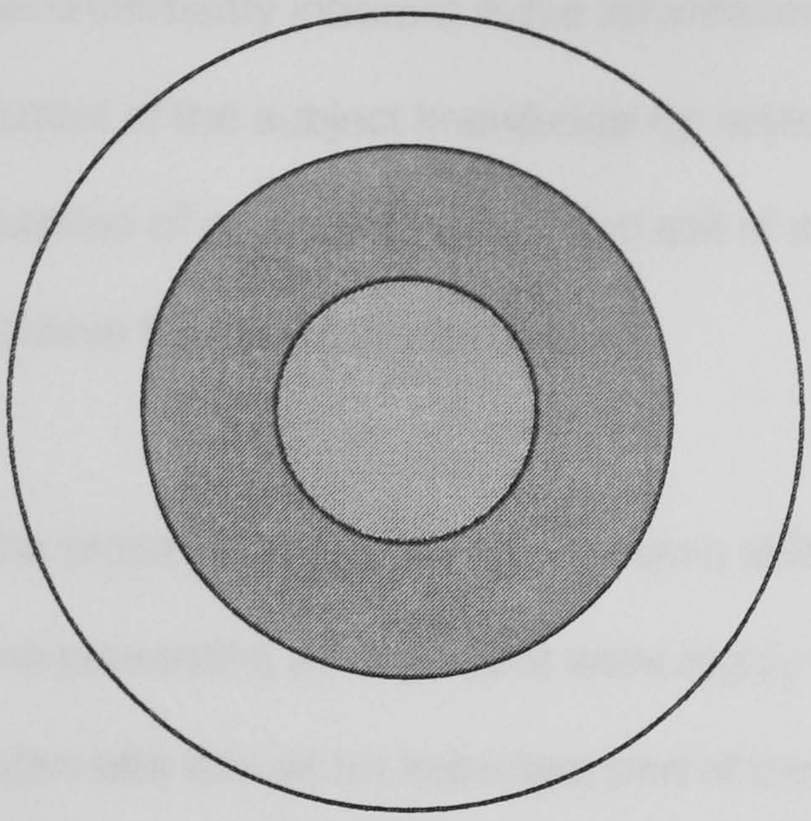
Summary

The Minimalist Pathway is narrow because students try to limit the amount of work they have to do. They make decisions about what materials to use and how to approach their assignments on the basis of convenience rather than intending to address the subject content. They may

gain some new knowledge but are unlikely to develop a good understanding; however, their assignment may have some coherence if they are able to borrow structures from their reading or re-present what they have found sufficiently well. Students aim to manage the study context in order to meet their own needs. Their sense of responsibility is to themselves, rather than to fulfil the requirements of a student role. Subject knowledge is only considered important because it is embedded in study tasks that have to be completed. Although students may have a sense of control and confidence, this is not related to gaining subject-matter autonomy and there are signs that this confidence is somewhat fragile as students start to recognise that they are not achieving the same standards as some other students. Some may actually experience failure and low marks.

5.4.2.2 Pinpointing

Figure 5.6: The Pinpointing pathway



Context: Students focus in detail on the requirements of the task set.

Self: The individual plays a very active role in managing the process and views it as personally important.

Knowledge: The subject matter is manipulated as part of the process and, of itself, is a lesser consideration.

Key

Self

Context

Knowledge

In the pinpointing pathway, students narrowed down their information seeking at an early stage by analysing what was required for the assignment, scoping the topic and quickly developing a clear idea of what their assignment would be like. They tried to cover relevant material and avoided reading more widely than necessary. Students used a strong guiding framework when working on their assignment but this was of a rather generic nature. Both Brian and Stuart knew what lecturers wanted and tried to provide it. Brian sought a contemporary and controversial area of biological sciences for his essay. Stuart looked for competing ideas or theories and controversial questions so that he could use one or more of them as the basis of an argument. He said:

> *'at the end of the day you're looking towards what mark you can get out of your dissertation or out of any essay and [you] think, well, there's more evidence to support this conclusion'*

The pinpointing pathway is highly task-centred. The specific question or title was very important as a guide. Application of a defined process, alongside a clear definition of the task, meant that the uncertainty inherent in the information literacy process was reduced. The student took control of the subject knowledge by selecting information resources and materials to serve the purpose of producing an assignment of a particular kind in order to impress the lecturer and achieve the best possible marks.

The processes of applying academic skills such as information searching, analysis of evidence and presenting an argument were highly valued by students using the pinpointing pathway. Brian saw this as an important part of the way scientists worked and felt that he was learning to *'do the academics' job'*. However, for Stuart it seemed that the approaches had become somewhat routine and rigid. The dissertation gave him greater opportunity to apply his academic skills but he was disappointed in the experience. Although he had enjoyed it, he said he thought that it was going to feel different as he had thought of a dissertation as being the 'pinnacle' of undergraduate study. In fact, it was like doing an essay:

> *'I basically wrote an essay which was split up into chapters ... but it was laid out in such a way that the themes I might touch upon in, say, a 2,000 word essay ... had the ability to be expanded upon because it was a ten thousand word essay.'*

Stuart clearly felt that something was lacking in his experience of the dissertation, as is shown by his use of terms such as '*just*' and '*purely*' in this description:

> *'I had pretty much done all my primary research so I knew where I was going to go with it, it was just a case of forming it into chapters, and I think that was just purely a case of going to the library and sifting through books, through journal articles, through official documents'*

The pinpointing pathway, if successful, is based on highly developed academic skills and critical thinking. It could thus provide a good basis for subject-matter autonomy. Students felt in control and confident in the processes of producing an assignment and took pride in carrying this through and demonstrating that they could handle the subject knowledge appropriately. Students had understood or internalised the academic criteria used to judge work in their subject and accepted them as worthwhile, reasonable and appropriate. This meant that they felt able to judge for themselves when they had done a good piece of work and would be surprised to receive a grade very different to their expectations. In relation to subject matter,

they were not daunted by having to deal with complex or contradictory materials, since they expected to be able to cope with them. However, they had an 'escape route' on the basis that, as a student, the emphasis was on how you approached the assignment, not necessarily the specific content used or the validity of the conclusion. Their confidence was based on their approaches to assignments and they were unlikely to choose to take risks and adopt non-standard approaches.

What may be lacking is a sense of ownership of subject knowledge and a broader sense of responsibility, beyond that of a student. The negotiation of autonomy in this pathway has been described as active management of the context, suggesting that subject knowledge is not core. Students might find some aspects of their subject very interesting and become very involved with ideas, theories and details, but they did not integrate academic knowledge into their own lives and actions. Bridget was willing to criticise the conclusions drawn from an experiment and knew that this was expected from her as a student, but she kept her own ideas out of her academic work. She said: *'it's not often that I have my own ideas, I tend to just read [it].'* Furthermore, subject knowledge is seen chiefly as part of the study context, rather than something which can stand outside that. It is embedded in assignments and study tasks and understanding is represented by good, coherent assignment presentation. The students approach the subject matter almost indirectly via the academic tasks they undertake so that their approach is task-centred, with understanding as a by-product.

Students felt a strong sense of their responsibility to adopt the accepted academic approaches to handling knowledge. However, they remain in a student role and adopt a task-centred view rather than accepting academic responsibility for the *content* of their work alongside its form. Stuart felt no need to believe his own arguments, nor did he feel that as a student he would be penalised for, in effect, getting it wrong, as long as he had argued a well-supported case. The argument was a demonstration of his academic capabilities and a means to get a good mark. It was acceptable to ignore evidence that did not support your argument as long as you demonstrated that you had constructed an argument well enough. The sense of responsibility was very much to themselves within the study context, working rather independently and rarely

mentioning discussion with other students. They pay attention to what lecturers require and try to produce work that is appropriate. However, responsibility towards the subject matter in the sense, say, of representing it as accurately as possible, was not accepted as a personal moral or ethical responsibility. In terms of potential impacts of subject knowledge, they did not see themselves as in a position to use knowledge in ways that would affect the subject or other people.

Summary

The Pinpointing Pathway is narrow and focussed because students use a rather generic approach to the production of academic assignments, quickly homing in on what they need. They are likely to develop a good understanding and present a coherent assignment, having developed a good level of academic skills and a way of dealing effectively with academic tasks. Students are very active and involved and enjoy demonstrating their skills. However, the subject matter is somewhat relegated in importance, or 'hidden' as part of study tasks. Students have a strong sense of control and confidence in operating within the academic context and understanding what is required as a student. Whilst they take responsibility for their work, this is more in relation to process than content, demonstrating a high level of subject-matter autonomy in relation to the processes of academic working in the subject. However, the ownership of subject knowledge and personal engagement with it was less strong.

5.5 Conclusion

This chapter describes distinctive experiences of information literacy which are embedded in students' experiences as learners. One of the pathways, the minimalist, relates closely to the concept of a surface approach to learning but the other pathways offer more subtle and differentiated approaches to what might otherwise be considered as examples of deep and strategic approaches to study. The information literacy perspective has been helpful here and has usefully emphasised the students' experiences of academic knowledge, rather then solely

their experience of the study context. One significant differentiating factor is the student's ability to discern the subject knowledge as something which exists outside its embodiment in study tasks. A further key distinction is the position of the student him or herself in relation to the subject and the study context, and their identity as learners, where there are stark distinctions between a student role and a participant role in the subject community. Whilst the information literacy pathways illustrate different experiences, at least three of them enable students to be successful in their courses. If we want to help them to develop further, whether this is aimed at improving their marks or developing new kinds of autonomy as independent learners, it is clear that different students need different kinds of support.

Chapter 6

Information literacy pathways and autonomy: conclusions and implications for practice

6.1 Introduction

This research began with the aim of exploring connections between information, learning and autonomy. The practice of information literacy occupies this ground, encompassing the processes by which individuals access and use information resources in the pursuit of learning. The research highlights the importance of the insider perspective in understanding how information literacy practice differs from normative models and varies between one student and another. The roots of these differences lie in students' negotiation of the study context, subject knowledge and their own roles. Learner autonomy is at the heart of the perspective on information literacy developed here. Working with information resources and producing a public statement representing one's own work is the time in undergraduate education when students are most on their own *and* most exposed to scrutiny. Students' concepts of themselves as learners and their ability to manage the context in which they are studying are crucial, alongside the students' stances towards academic knowledge and their place in relation to it. Information literacy pathways, which are categories depicting critical variation in the experience of information literacy from the student perspective, have been developed from the research data. In this final chapter, implications for further research are considered briefly. Implications for educational practice are addressed more extensively to fulfil the commitment to the improvement of learning that underpins the research. The suggestions here foreshadow the uses to which the research may be put in educational practice and research, in order to continue such improvements.

6.2 Implications for further research

The model developed here is based on a small-scale study. This inevitably raises questions about its validity and reliability. In terms of the scale of the study, samples of a similar size are considered to be acceptable in phenomenographic studies (for example, Entwistle & Entwistle, 1992; Hounsell, 1997) and in many other forms of qualitative research. What is key is that the sample is sufficiently varied to enable the scope of the phenomenon being researched to be investigated. The research outcomes show that small groups of students in two settings have provided a rich set of data enabling significant, critical differences to be discerned. Academics and information specialists with whom I have discussed the work at interim stages recognise the authenticity of the experiences described. Furthermore, the outcomes of the research connect with previous research in learning and information behaviour in ways which enhance confidence in the trustworthiness of the data and its interpretation. Nevertheless, some caution is required because the research presents a new development on existing work and it is based on a small number of students in just two subject areas. This should be examined critically in other settings and subject areas.

Disciplinary differences may be particularly important especially in relation to a broad, perhaps even stereotypical science/humanities distinction. In some subjects, especially science, there is often an emphasis on acquiring knowledge in a well-defined sequence and building up from detailed procedures, rules and facts towards an overarching framework or understanding. This may be reflected in an emphasis on operation learning (Ramsden, 1997) and information use which focuses, at least initially, on details and components of the topic. On the other hand there may be more emphasis in humanities subjects on comprehension learning, acquiring the 'big picture' first then elaborating it and filling in details. Ramsden, drawing on the work of Pask, stresses that, ultimately both operation and comprehension learning are required to gain a good understanding in any discipline Nevertheless, these disciplinary differences are likely to have a substantial impact on the student experience of information literacy.

The research data provides limited evidence in relation to longitudinal change. Learning and the development of autonomy take place over an extended period of time. Although much of the interview data is suggestive of change, this is change viewed retrospectively by students from their current perspective. Longitudinal studies which could more fully address changes in information literacy practice in a similar way to Baxter Magolda's (1992) study of intellectual development would be valuable. In addition to this broad perspective, there is a need to research the effectiveness of developments in educational practice which build on the insights and suggestions made here. This would further enhance understandings of students' information literacy experiences in a range of contexts and provide guidance in more effective ways of supporting student development.

6.3 Implications for practice

This section addresses academics and information specialists and proposes principles and practices to assist students in developing autonomy and information literacy. The concept of information literacy is useful because it emphasises students' active roles in their learning and the need to develop their capabilities. However, much information is now in electronic forms and is associated with broader uses of ICT in education and society. In this context, information literacy can be used to downplay the role of interpersonal interaction in learning and to promote inadequate information transfer models. For example, in the month when this chapter was being finalised, the Times Higher Education Supplement reported Tim O'Shea, Vice-Chancellor of Edinburgh University, saying at the Society for Research in Higher Education Conference that:

> '*students did not need to remember so much information because it was always accessible on computer networks*' (THES, 19/26 Dec 2003, p. 2)

This kind of statement reinforces views which equate learning with memorising and suggests that recorded information can in some way substitute for knowledge and understanding.

The perspective and suggestions here are more in accord with Candy's (2000, p.150) statement that, despite new technologies:

'Information literacy is still, at its heart, a primeval struggle to make sense of information'

The key principles here concern: processes of learning; student development; the nature of academic knowledge; and the role of the self in learning.

6.3.1 Learning processes

It is imperative to know something about the process of student learning if we want to help students to develop. In the communications modules in Biology, lecturers tried to intervene in the way students gathered information for their essays by instructing them not to use the Web in order to prevent inappropriate use. However, they did not try to find out about how students used the Web in some possibly legitimate ways such as: to gain an overview of a new topic; to find definitions and explanations; to access teaching materials from other university lecturers; and to find references to published research through institutional and individual research pages. Discussion of different ways of using the Web, building on students' existing practices, could have reduced frustration and uncertainty amongst students and have had a more positive effect on their approaches to information use. Similarly, librarians in the study described information searching instruction which promoted a focussed, targeted approach. Whilst this is in line with professionally accepted best practice, it does not acknowledge the difficulties that students who adopt the broad information literacy pathways, gathering and connecting, would have in accepting such approaches.

In most cases, lecturers only have evidence of the end products of student work and make assumptions about processes and provide feedback on that basis. They are often disappointed when students do not seem to pay attention to feedback and improve their subsequent academic work. Librarians are puzzled when students do not appear to grasp some of the straightforward, technical processes of database searching. More direct evidence of how students do things rather than only what they produce might provide some explanations. Even students who produce good work may be having difficulties of which lecturers are unaware if they only consider the finished products. Students may be achieving reasonable marks, but their potential, personal satisfaction and preparation for autonomous learning in future may be

unnecessarily restricted, as has been illustrated here by examining some of the pathways which students followed. For example, it could be argued that students adopting a pinpointing pathway successfully are doing well, showing a high level of academic skill and doing everything that could be expected. Brian, who took this approach, gained a first class mark for his scientific communications essay. It may seem unreasonable to ask for more. However, the dissatisfaction shown by Stuart as he approached the end of his degree course makes it worthwhile to consider what could make this pathway even better and more personally satisfying.

Strategies that may be helpful in engaging with the processes of learning are:

- Discussion between lecturers and students individually and in groups about the ways in which they are undertaking academic tasks.
- Reflective tasks, such as learning logs, requiring students to write or talk about their ways of working. This is not purely about student self-reflection. The lecturer response to students' reflections, using them as a way to guide further development is important.
- Student collaboration and group working which can provide a forum for students to discover new ways of doing things and to question their own approaches.
- Using the opportunities provided by new technologies such as VLE[1]s to gather evidence of process, such as student group discussions, or information search logs. These would need to be used carefully in order to be a vehicle for reflection and discussion rather than simply monitoring tools.

6.3.2 A developmental approach

Lecturers often attribute student performance to a mixture of effort and intellectual capability but these can be rather limiting explanations from a developmental point of view. There may be an assumption that by the final year, students have reached whatever standard they are going to achieve, with little scope for further improvement, especially if there are no obvious problems and the student is on track for a 2[nd] Class degree. However, some final year Social Science

students in this position lacked confidence in their own capabilities and academic competence. Although such students may succeed in their courses, this does not indicate that they could not have achieved more with the other kinds of support. Many degree courses offer explicit support for student development through programmes addressing academic study skills, but these often take place at an early stage. This needs to be extended into later stages of study, recognising that students do not simply acquire the academic skills that they need in Year One and then get on with learning the subject.

Strategies that may be helpful in implementing a developmental approach are:

- Staged and iterative attention to academic skills. This should include building on the different approaches that students take, rather than promoting only normative models. As illustrated in the pathways here, students clearly have different starting points and needs.
- Addressing skills development through discussion and feedback on student work. Generic advice and the provision of assessment criteria do not necessarily help students to change their approaches. Similarly, lecturers find it difficult to articulate some fundamental concepts, such as 'argument' or 'critical thinking' (Lea & Street, 2000, p. 39) in a general way. Helping students to understand needs to take place within the context of specific academic tasks.
- Addressing skills development in the context of wider academic development, recognising that apparently straightforward, 'technical' skills are embedded in much more fundamental issues about learning and learner identity. This is particularly important where skills development, as is often the case for information skills, is addressed outside the mainstream of the course.
- Promoting high standards and expectations for all students throughout their studies, rather than consigning them to categories. Whilst not all students will achieve the same outcomes, they can all be encouraged to see themselves as capable of developing further, rather than just settling for where they are. This may require that a broader range of achievements is recognised and valued in some way.

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[1] Virtual Learning Environment such as WebCT, Blackboard

6.3.3 Academic knowledge

Subject-matter autonomy requires students to develop their understanding of academic knowledge and ways of working with it. At a practical level, students may have a limited understanding of matters which academics and librarians take for granted, such as the ways in which academic work is published, and the different functions of journals, books, student texts and so on. This can indicate quite fundamental differences in views about subject knowledge. For example, the importance of building on the work of others as part of the scientific method was not part of the everyday way of thinking of Biology students. Some Social Science students viewed their subject as constituting a way of thinking about the world, whereas others expressed a more restricted view of subjects as collections of organised knowledge and competing theories. In a sense, this is complementary to the principle of needing to understand the processes of student working. Students need to be helped to understand the processes and values which underlie academic knowledge and ways of working. One of way of doing this is by allowing students to undertake realistic tasks such as small research activities so that they participate in a process of knowledge development. Working in a real-world setting can open up new views. For example, Sadiyya was forced to consider how her dissertation work might be viewed in the community where she was researching; in particular, how they might regard a Western feminist approach. She modified her approach, both to increase its acceptability and so that she could produce knowledge which would be more helpful to the women within the community.

Students also need to be encouraged to take responsibility for their own statements and conclusions. Lecturers sometimes tell students that it is not what they say but how they say it that is important. They do this with good intentions, trying to lead students away from the idea that there is one right answer and encourage them to develop arguments based on their own ideas. However, this may actually reinforce the view of some students that ownership and a sense of responsibility for what they say is irrelevant (Crème, 2003) and encourage them into 'academic games'. Genuine dialogues about the subject between lecturers and students and amongst students are needed. Some Biology students described a shift in perspective when

they had to give a presentation to fellow students. In comparison with writing an essay, they became much more concerned about getting things right and explaining them properly.

Strategies that may be helpful in developing an understanding of the nature of academic knowledge are:

- Enabling students to use a range of information resources, providing a concrete demonstration of the range and variety of academic knowledge and its published forms. The greater accessibility offered by electronic information sources and tools is a clear benefit here. However, this should be accompanied with explicit guidance to help students to see something more than, say, an undifferentiated sea of facts, and to help them to deal with, rather than retreat from, complex material.
- Discussing and demonstrating the processes by which academic work develops knowledge and how it is translated into publications. Without this there is a danger that students see only the information products and not how they are developed.
- Students' ideas and interpretations, that is the content of their academic work, should be valued. Feedback on assignments should acknowledge the importance of what students say, as well as the approaches they have taken. This may require a different stance from some lecturers to engage in genuine communication and respond to students' ideas.
- Giving students opportunities to practise authentic academic ways of working, such as gathering empirical data or analysing primary data, so that they engage in the process of creating new knowledge. Again, resources available in the electronic information environment may be helpful.
- Opportunities to share ideas with fellow students through discussion or presentations. Students may also be able to publish their work through student conferences, local electronic publishing in a VLE, or even on the Web.

6.3.4 Bringing the self into academic work

Personal involvement in academic work, or lack of it, is a critical feature distinguishing between information literacy pathways. Giving students some choice in their studies and allowing them to follow their own interests is often recommended in order to promote deep approaches to learning, learner autonomy and such personal engagement. However, students may need encouragement to take advantage of such opportunities if they are not to remain detached from academic work. For some students, this lack of personal engagement may stem from a lack of confidence that they have anything to contribute and a belief that they need to keep personal views and ideas out of academic work. Others, as we have seen, concentrate on the processes of academic study, acting as if how they do things is much more important than what they say. Students who were more personally engaged in their subjects wanted to talk about them. Being able to discuss ideas with fellow students seemed to reinforce their sense of engagement: Stuart, who had been unable to find such opportunities, expressed disappointment.

Connections to students' own lives and experiences seems to be very significant. Sophie said that earlier in her course she had wondered how she was supposed to decide between different views or theories. In her final year, it was linking it to her own interests and experience which helped:

> *'you're choosing a topic, rather than it being set in stone already, and you may have had a personal experience with that theme and so you can put that in and have more grounds for making your own opinions'.*

Dr Elder encouraged students to draw on their own experiences in class discussions and in their writing in her module. A number of students also related their dissertation to their own experiences, not just to academic interests they had developed on the course. Selena chose a topic which related to her own family life and which addressed:

> *'deeper sort of questions that you actually have in your own mind, rather than something that you've just leamt'.*

This can be illustrated by the experiences of Sadiyya, who undertook an empirical research study for her dissertation. For the first time an academic piece of work gave her a better

understanding of personal issues in her own life. The dissertation work also made a difference to her approach to a later essay:

> *'if I'd written this essay on migration before I'd done my dissertation, it would have turned out very different. ... I'm a bit more confident in using that firsthand experience'.*

Undertaking a dissertation, and having some knowledge which they had clearly produced for themselves, made a difference to some Social Science students. Sean was fully committed to presenting the new understanding he had gained from his dissertation:

> *'it was my own fieldwork so I really felt like it was totally my own work and there was nothing had been written on this subject before ... not specifically'.*

Other students who undertook library-based studies, rather than empirical research, did not seem to gain the same sense of having something of their own to say. Shahira did not seem able to develop any strong commitment or her own view on the topic she studied:

> *'I don't think there were different views, this has been gone over so many times before there's already been conclusions reached'.*

Strategies that may be helpful in encouraging students to engage personally with academic knowledge are:

- Assignments which require students to draw on their own experiences or encourage them to pursue questions and issues stemming from their own experiences, lives and concerns. Discussions in class sessions which draw on relevant experiences can also be helpful.
- Activities which place academic knowledge in 'real world' settings, such as fieldwork or research where students gather empirical data, earlier in the course than the final year. Appropriate activities would need to be devised since clearly students could not undertake work with the scale and scope of an honours dissertation in their first or second years.
- Allowing sufficient choice for students to decide for themselves, follow their own interests and practise their own ways of working.
- Opportunities for students to discuss their ideas with their peers and with lecturers. This may require a different kind of dialogue between students and staff, shifting lecturers from a solely judgmental, expert role to one where they are prepared to discuss what students have to say with genuine interest.

6.4 Coda

Despite the great potential benefits to learning provided by information use and the near impossibility of imagining academic learning proceeding without personal access to texts, data and, increasingly, electronic information resources, tools and databases, most of the suggestions for practice above may not seem to relate very closely to information use. They seem to be more about people and dialogue than the individual use of information resources. I began by wondering about the link between learning and the vast amount of information now accessible to students. I discovered information literacy as a bridge between the two. What has emerged seems to suggest that, although information is important for learning and provides many opportunities, the bridge between information and learning is not so much information literacy as interpersonal connections. This may not be a welcome message in a resource-stretched higher education system where there are compelling reasons to hope that technology can provide cost-effective, good quality learning for large numbers of students substituting to some extent for lecturer-student interaction. I would like to conclude with some illustrations drawn from the research of the importance of connection.

The first is a conventional tutor-student interaction, although what was once conventional, or believed to be so, is perhaps not now so common. In the preliminary interviews I held with lecturers, Professor Lime who taught English at the University of Arden told this story:

> *'I think nothing beats, in my view, an experienced tutor, who's up to date, being able to say to a student, you know, I think the person you need to read is x and that's where you need to know the student and you need to know the field. For example, I can remember a student saying she wasn't really enjoying some Chaucer. Now it's not my field, but I happened to have been very enthused about Chaucer as a student and I told her the book that I particularly liked, by John Bayley, you know, of Iris fame? He's written a lovely essay on this beautiful Chaucer poem, Troilus and Criseyde, and I said that's what really made me realise what a great poem it was. And she went off and read it and said, you know, it had changed her view - you get lucky moments, I think'.*

The student still had to read, understand and make sense for herself, but the guidance she received about which information resource might be appropriate seems to have helped her to understand and appreciate Chaucer. Her sense of connection to the academic community may

also have been enhanced through Professor Lime, who had understood her difficulties and tried to help by offering something which had benefited him, thus including her as a member of his own academic community.

Students themselves can also form an academic community and my second and final example is drawn from Sophie and her fellow students:

> *'I've found among friends, people have started talking about the subject in their free time and exchanging ideas which didn't really happen in the first and second years as much. And, you know, in a pub context sometimes even, people will be talking about the work and someone might have come across something that would be useful to someone else and there's a sort of exchange network going which I think is really useful because everyone's constantly looking in the library for certain things and if you know what each other's doing, you might be able to find something for them. I think that's a much better way. ... I like it that by this year finally people are actually talking about their subject in their spare time, just because it's actually come to affect their lives'.*

Even in the pub, information, learning, autonomy and community can come together.

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LIST OF APPENDICES

Appendix 1 : Sample email to lecturer contacts

I am contacting you to ask if you would be willing to be interviewed as part of a research project. Your name is included in a list of potential contacts I have drawn up through consultation with colleagues at Birnham University including some of the University Library Liaison team.

I am a part-time doctoral research student in Education at Newcastle University and my full-time job is at Northumbria University. My interest is in the use of information resources, including electronic resources, in undergraduate education. The term 'information resources' encompasses library materials such as books, journals, reference works, primary resources and also electronic information resources such as electronic journals, online or CDROM data bases and reference sources and information from the Web.

At this stage I would like to talk to some academics about the ways in which undergraduate students are expected to make independent use of extensive information resources and the implications of this, especially with respect to electronic information. Most academics who teach undergraduates will probably have some experience of this and interviewees do not need to be expert users of ICT or computer-assisted learning[1].

If you are willing in principle to be interviewed at a time convenient to you, please contact me via email to liz.mcdowell@unn.ac.uk or phone 0191-215-6446. It is anticipated that interviews will take 30-40 minutes and will be conducted face-to-face. However if you prefer to talk by phone this can be arranged. I realise that this is a busy time of year. Interviews need not take place immediately but I would appreciate knowing that you are willing to be contacted about this research.

Thank you

Liz McDowell

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[1] I included this statement because I had found that contacts often thought that I wanted to talk about the use of ICT in teaching and learning or elearning

Appendix 2: Lecturer Interview schedule

Pre-interview

Check with them what the study is about
- range of information resources used in your subject especially their use in undergraduate/degree courses.
- How various information resources are used in the students' academic work, assignments and so on
- Library
- Electronic information – ejournals, databases, Web pages
- Different types of resources – academic textbooks, statutory or legal documents; published statistics; research papers.

Also mention:
- Interested in differences between subjects – no right answers
- confidentiality
- possibility of case studies
- interviews part of EdD study
- a number of overlapping issues will be covered in the interview – but I'll try to avoid repetition!

The course, teaching etc
Clarify what is specific to them and the subjects they teach and what is about the course in general

What sorts of courses/subjects do you teach?

How is the course taught? (lectures, work-based learning, lab work etc)

What sorts of assignment do students do? And exams? Other academic work e.g. seminars?

Information resources

What sorts of information resources do you expect students to be using in your subject?
(e.g. text books, journal articles, primary resources, archives, statistical data sets ...)

Do you expect them to use any electronic information resources?
(e.g. data bases, e-journals, the Web)

To what extent do you give reading lists or guides to what information resources students should use?
How do you expect students to use your reading lists?

Is it important for your students to use the library? In what ways?

Is electronic information resources or electronic access to information via the library important ?
– in what ways? e.g. ejournals, databases, CDROMS, statistical data.

Is information accessed from the Web or Internet or specialist databases important?

How does this vary over the undergraduate years?

Assignments and other academic work
Ask for specific examples – clarify that it may not just be occasional formal assignments – preparation for seminars, practical work etc would be included.

What information resources do you expect students to draw on in writing an assignment/doing their academic work?

What kinds of things do you expect from final year students compared to first or second year? (e.g. extensive information resources, appropriate, coming up with something new and different, used to develop an argument)

In terms of accessing information resources and using them to good effect - what sorts of things do you see from the best students - and from the average student?

Independence

Do students have a choice in relation to assignments – either about what topics to do or what information resources to use?

To what extent do you expect students to become independent in their use of information resources?

Are you also looking for independent thinking? What does that mean to you? Is it encompassed by the term critical thinking?

To what extent do you expect students to weigh up different information and decide what's valid and what is useful?

To what extent do you expect students to deal with conflicting evidence or different views?

Information skills/use

Do students have any problems in using information resources in relation to their academic work?

- difficulties in identifying what they need to find out?
- accessing information e.g. using catalogues, databases or search engines? (IT skills, library use etc)
- Evaluating or making sense of the information they've got?
- Using it to good effect e.g. in a good assignment?

How do they develop their abilities?

- information skills course,
- feedback on assignments,
- individual lecturer guidance

Impacts of access to information

Does the fact that there is more access to information enable students to be more independent in their learning? Does it give them more scope or freedom in their learning?

Do they achieve more than perhaps students did some years ago?

Has it changed what students do and how they are taught and go about learning – compared to say 10 or 20 years ago?

How important would you say handling information is in your subjects/profession?

What kinds of things will be required of students once they've graduated? What sort of work? Do they need to draw on information resources, handle information ?

What other kinds of capabilities do you believe they need?

More information

We'd all agree that there is more information available nowadays, especially electronic information – online data bases, electronic journals, Web pages, statistical data and so on. How has that particularly affected your subject?

Has it changed the way you yourself do things – in your teaching, research or professional practice?

Has it changed the way professionals work in practice?

The above section was moved into the final 'Impacts of access to information' section after the first few interviews as this was where it seemed to fit best.

Anything else to say that has not been covered?

Appendix 3: Lecturer interviews, rating for further research potential

Criteria

1. Extent of opportunity within the course for students to make use of information resources including electronic information resources
2. Extent of opportunity for students to engage in information seeking independently (without explicit, precise direction from lecturer)
3. Extent of opportunity to use primary and secondary information resources and both academic and non-academic information resources
4. Extent of systematic guidance/training on information skills and information use, either embedded in subject teaching or in a skills course
5. Emphasis that the lecturer places on autonomy and critical thinking as an aim of the course

Birnham University

Criteria	Dr Beech Animal Science	Dr Alder Mechanical Engineering	Dr Hawthorn Environmental Science	Professor Cedar Biology
1	5	3	5	4
2	4	1	4	4
3	4	2	5	3
4	3	1	3	5
5	4	2	4	5
Total	20	9	21	21

University of Arden

Criteria	Dr Sycamore Theology	Dr Pear Chemistry	Dr Tulip Economics	Dr Birch Sociology	Dr Elder Anthrop-ology	Dr Holly Physics	Prof Lime English
1	5	3	5	5	5	3	5
2	5	2	4	5	5	2	5
3	4	3	5	5	4	1	2
4	4	4	4	2	3	2	3
5	5	3	3	3	5	3	5
Total	23	15	21	20	22	11	20

Greenwood University

Criteria	Dr Whitebeam Psychology	Mr Cherry Finance	Mr Hazel Economics
1	5	4	5
2	4	2	4
3	3	2	5
4	5	1	4
5	5	3	4
Total	22	12	22

Note:
Only 14 lecturers were rated since one at the University of Arden was a part-time lecturer working mainly in practical classes and was not able to provide a suitable context for further study.

Appendix 4: Biology: email seeking student volunteers

I'm looking for student volunteers to be interviewed. Would you be willing?

I'm a part-time PhD student in Education looking at aspects of learning in universities from a student perspective. If you were at Professor Cedar's practical class last Friday you saw me there!

The interviews will last up to an hour and they will be about what you are doing on Professor Cedar's module and in your scientific communications module this term. I'm especially interested in the independent work that you do such as reading and finding information for your assignments. Students from either of the Biology degrees doing the Plant Physiology module are welcome.

There would be two interviews – one very soon I hope and another before the end of term. Anyone who takes part in two interviews will get a small payment of £20.

Please get back in touch with me by email if you are willing to be interviewed and we'll discuss the detail and make arrangements. Wednesday (30th October) and Friday (1st November) next week are provisionally arranged for interviews but other days are possible.

Email is probably easiest (liz.mcdowell@unn.ac.uk) but you are also welcome to phone my work number, 0191-215-6446 (it has voice mail).

Appendix 5: Biology: email circulated by Professor Cedar to all departmental colleagues

Dear Professor Cedar

Thank you for assisting me with my research. This email gives some information about the research so that you can circulate it to relevant colleagues in your School and inform them about what is happening.

Educational Research Project

I am a part-time EdD student at Newcastle University. My full-time job is at Northumbria University. For my thesis I am looking at aspects of learning in universities especially students' independent work such as reading and finding information, including both library materials and electronic information (e.g. the Web).

Professor Cedar has helped me to make contact with second year Biology students taking one of his modules in order to obtain volunteers for interview. I'll be concentrating mainly on the Plant Functional Biology module and the scientific communications modules in my interviews with students.

This research will be written up in my thesis and in other publications but the university and department will not be identified, and of course all the student volunteers and any lecturers that I talk to will remain anonymous.

Liz McDowell

Appendix 6: Biology: Scientific communications module in Environmental Biology, course work specifications

10 minute talk
Based on an article in New Scientist allocated to the student. *'You boss asks you to read the article, research it and give a presentation lasting 10 minutes … Your objective is to inform the group and alert them to important facts'*
40% of module mark

Short report (500 words)
This is based on the same New Scientist article but here the students is asked to write for a busy boss who '*wants the essential facts assessed*'. Students are instructed to look for corroborating information.
15% of module mark

Scientific essay (2,000 words)
This is described as a '*scientific assessment*' of a subject allocated to the student. Use of scientific literature is important and the results from an initial literature search presented as a properly formatted reference list must be submitted early on in the module.
45% of module mark

The criteria for marking the essay are as follows:

	% of total essay mark
Literature search reference list	10%
Essay	
Conformation to style including: Correct use of references in the text Correct citation of sources in bibliography Tables and graphs appropriate and accurate Accurate presentation of evidence Clear lay out	30%
Structure Logical structure Logically developed arguments Grammar, punctuation Spelling Readable, good vocabulary use of paragraphs	30%
Originality of assessment of the subject Use of primary sources and originality in composition Knowledge of the subject Critical approach	30%

Appendix 7 : Biology: scientific communications module in Biology, course work specifications

Scientific literature review (3,500 words; 75% of module marks)
(elsewhere in module documentation sometimes referred to as 'essay' or 'project')

The essay is designed to demonstrate skills in using scientific literature and presenting a scientific literature review. Each student has a supervisor who will assist them on request including reading drafts.

Students are directed in printed guidelines to pay attention to:

1. Organisation
   - Use of sections including introduction and conclusion
   - Appropriate and well-formatted tables, diagrams or images
2. Selection of data
   - Balance breadth and depth of treatment
   - Appropriate use of primary resources (scientific papers) and secondary sources (textbooks, reviews)
   - Up to date references and coverage of the historical background
3. Analysis of data
   - Accurately describe purposes of experiments
   - Describe methodology to enable the reader to assess conclusions
   - Conclusions you draw supported by the data
4. References
   - Sources of information and illustrative material clearly indicated
   - Direct quotations placed in quotation marks
   - Reference list in correct format
5. Use of English
   - Sentence construction
   - Spelling, punctuation, grammar
   - Use of scientific terminology
   - Abbreviations used only when necessary and defined
6. Style and presentation
   - Consistent use of formats such as italics, underlining
   - Consistent heading style
   - Appropriate margins
   - 1.5 or double line spacing

Process

Week 1: Students agree two (alternative) proposed titles with potential supervisors and submit to Module Leader who confirms with the students which title they can proceed with (perhaps with modification). Titles may be chosen from a list or students may propose their own.
Week 3: Project Plan is submitted to supervisor and then to Module Leader.
Week 5: Essay is submitted

Essay marking criteria

Scientific understanding and insight:

- Knowledge
- Understanding
- Critical appraisal

Logical structure

- Introduction
- Central section
- Conclusions

Quality of presentation

- Divisions and headings
- Equations/units
- Graphs and tables
- Use of English
- Presentation of references

Talk (15 minutes; 25% of module marks)

Students chose their own topic and are advised to choose a narrow topic since a broad topic cannot be covered in 15 minutes. They are advised that this must be a scientific presentation based on scientific literature. They are directed to the assessment sheet for further guidance. The assessment sheet lists the criteria below with no indication of weighting.

Content

- Knowledge of subject/depth of material
- Interest, clarity, completeness

Structure

- Suitable introduction
- Logical development
- Effectiveness of closure

Visual aids

- Clarity
- Appropriateness
- Impact

Delivery

- Audibility
- Mannerisms
- Expression
- Fluency
- Pace

Timing

- Within allocated time
- Balance of contents

Response to questions

Appendix 8: Biology: data sources

Biology data sources

			Dates
Staff interviews	Professor Cram	Module Leader, Plant Physiology	20/6/02; 30/1/03
	Dr Willow	Module Leader, Scientific Communications Module, Environmental Biology	14/11/02
	Dr Pine	Module Leader, Scientific Communications Module, Biology	14/11/02
	Mrs Rowan	Liaison Librarian for Biology	29/11/02
Student interviews 1	Brian Becky Brendan Bridget Bethany	Biology degree	30/10/02 – 8/11/02
	Beatrice Briony Bernadette	Environmental Biology degree	
Student interviews 2	Brian Becky Bridget Bethany	Biology degree	4/12/02 - 6/12/02
	Beatrice Briony Bernadette	Environmental Biology degree	
Class observation notes	Plant Physiology practical		18/10/02
Documentary sources	• Level 2 Biology Student Handbook • Lecture schedule and sample student handouts for Plant Physiology module • Student handouts, printed guidance, assessment criteria and marking sheets for scientific communications modules • Library skills handouts used with Biology/Environmental Biology students • Copies of student essays (Becky and Bridget)		

Appendix 9: Biology: First student interview schedule

I'm interested in the independent work that you do on your own, outside lectures and practicals, especially reading and finding information for yourself as you have to do for the library project. I'd like to start with Professor Cedar's module and come back to the scientific communications module.

Plant Physiology
Can you tell me about the module – what do you have to do in that module?
Is it different to other modules?

Readings
Prof Cedar has been recommending readings to do – have you been doing the reading?
How has that been?

Finding materials – difficulties in getting hold of them?
Understanding them – do you find the things you've been given easy to understand?
Learning from reading
How do you go about reading – do you take notes, mark the text or just read it?
Would you be able to say now what something you've read recently was about if you were asked?
What do you think you need to remember from these readings? Why? Do you remember them quite well?
Have you found the readings interesting?
Purpose of reading
What is the point of doing this reading ?
How is it different than just having a lecture?
Is it better or worse?
Will they be relevant in the exam? Have you even thought about the exam at this stage of the term?

Assignments/coursework

Long report
Have you started on/to think about the long report on the growth experiment yet?
What readings/information will you use for that?
Have you used any information/resources not directly recommended?
Why? How did you go about finding them?
How did you know that they were useful?
How have you incorporated what you have read into your report?

Do feel fairly confident of doing a reasonable job on the long report? Why do you say that? Do you envisage problems? What would get you a good mark do you think?

Other assignments
What have the short reports been like? What did you have to do?
100 words – based on a paper about a particular tree. How did you find doing that? Did it make any difference that it was just 100 words? How did you go about it?

How confident did you feel about doing the short reports? And the 100 words?
What do you need to do, to do well?

Overall learning
What are the main things you are learning from the module? Is it more satisfying to learn this way or is it more like a chore?
- approach
- knowledge gained

How do you feel about doing an exam in this module?

Scientific Communications
Can you tell me about the scientific communications module. What essay you're doing, how you chose it and how you've been getting on?

Starting
When you got your title – what did you think about it – were you pleased – why? Was it what you wanted?
How did you make a start?

Information seeking
Has finding relevant information been easy or difficult? In what ways?
How did you decide what to look for and what was relevant or not?
What kinds of information did you use? Books /text books/recommended readings
Similar essays you'd done before e.g. A level.
Journals, newspapers
Web
Encyclopaedias etc.
Any idea about how many references you will have in your final report?

You've had some guidance in literature searching – do you remember that? Did it help? Did you have any problems? Did you get any help?

Are you pretty good at doing something like this where you've got to search things out for yourself, manage your time and put it together – is it something you find hard? Why do you say that? Do you like doing that?

Putting it together/communication
How did you go about putting it together for your presentation and long essay?
Is it different doing the presentation and the essay? In what ways? Do you learn more from one than the other? How does that happen?
How did you **structure your presentation**? What did you say?
What is/will your **essay** be like? What will it say?

Making conclusions/argument
This is a topic you've had to research for yourself - how do you know you're right in what you say?
Did it take a while to sort out? Did you find that different references said different things? What did you do about that?

What would you say are your main conclusions from what you've done?

Supervision
Have you seen your supervisor/tutor much during this module to talk about what you're doing?
How has he or she helped you?

Outcomes How confident are you that you'll do well in the module/ What do you need to do, to do well? What sort of person will do well in this module?

What have you learnt from doing this library project module – the presentation and the essay?
Are there some things you **can do better** now than maybe you could before?
How will they help you in future on the course?
Are they the kinds of things that could be useful in other ways – like in a work situation?
Have you improved **skills** – time management, computer skills, information searching etc?

What have you learnt about the **topic**? Is that useful to you in your course or beyond?

Do you feel a sense of satisfaction or will you just be glad it's over? Why?

If you compare them, which is the best way to learn? Plant Physiology or scientific communications module – why do you think that?

Appendix 10: Biology: second student interview schedule, Biology degree

Specific questions re Biology scientific communications module

Talk
Since last time you've done the communications talk – how did that go?
How did you prepare for the talk?
Was it easy finding relevant information – how did you go about it?
How did you decide what was relevant?
How did you structure your presentation?
How were you influenced by what other people had done – or what the lecturer said in the weeks before you did yours?
What was the main message - if you had to express it as a sound bite?

Essay
We talked about the communications essay last time – anything further to say? Marks?

Prof Cedar's module
Since last time you've done the long practical report – what did you have to do?
What did the lecturer really want in that report?
What readings/information did you use?
Did you use any information/resources not directly recommended?
Why? How did you go about finding them?
How did you know that they were useful?
How have you incorporated what you have read into your report?
Do feel fairly confident of doing a reasonable job on the long report? Why do you say that?

Exam – how do you feel about the exam and what are you doing about the exam?

What do you think now about this module compared to the way other modules are done? Is it better or worse for you personally?

How have/do you think you'll do on this module in terms of marks? Will this be better or worse than you normally do?

Assignments
This term you've had a talk to do, an essay and various practical reports and assignments to do in other modules.
In general on your course what do you think makes a good assignment (essay or report)?
When you're doing an assignment what are the good/bad bits? What are the easy/hard bits?
Do you always have to have a conclusion? How do you come to a conclusion?

Information use and sources

The scientific communications module has been about getting you to use different information resources.
Could you run through for me the different types of information resources that you know about that could be relevant to your learning in Biology?

Printed	Activities	People
Books/text books	Lecturer notes	Lecturers
Journals	Practical work	Other students
ejournals	Field work	Experts
Web	Library	
Encyclopaedias	WebCT	

What are these different resources for? How or when would you use them? Which are most helpful for learning? Which would you use most?

One of the things you've had to do is to learn how to cite different items. Why do you think you have to cite the references you've used?
Why do you think scientists and researchers cite what they've referred to when they write?

Do you know how scientific work get published – what the process is? Why is it like this?

You've been searching for things in biology publications, journals and so on.
Is information searching easy? Is it important on your course? Will it be important to you after the course?

What things do you have to keep in mind when you're searching for information?
Do keywords always work? How do you decide what the keyword is?
How do you know if something that turns up in your search is relevant?
How important is it to have the latest up-to-date information? Is that always the best?

What's the point of learning more independently – using different information resources? Is it a good thing or not? In what circumstances would it be a good thing?

In a work situation – what would you do? How relevant is your course and what you do as a student to this?

Questions about broader issues

Knowledge
What sorts of things do you learn as a biology student? (not just in the modules we've talked about but in general)

Are there are a lot of facts to learn in biology?
How much is biology black and white? Right or wrong? How do you feel about that?
Are lecturers always right?

Do you ever *think* about biology-related things outside your course?
Do you ever *talk* about biology-related things outside your course?

Do you have your own views on things you come across in biology? Do you make up your own mind?

Personal
What kinds of things interest you in biology?
How did you first get interested? Are you still interested?
What makes something on your course interesting or not?
Does it help you learn if you are interested in the topic? Does it matter on this course?
Do you ever come across things on the course that you want to know more about?

Learning
What's the best way for you to learn (in biology)?

When you have difficulty in understanding something or it is confusing what do you do?

What things about your course and studying here help you learn? What doesn't help or gets in the way of learning?
Things that you do, that lecturers do, that fellow students do?

How much do you feel you get to manage what you do – plan your own time, take time to do what you want to do etc?

How confident are you in what you know? How do you know when you're right? What about an assignment or report – do you know how well you've done or do you wait for the marks back? Does that help you improve? (including feedback)

Orientation to study/identity
How did you come to be on this course?

How have you changed since you started on this course?
What difference has it made that you're studying biology and not something else such as English or Sociology or Engineering? How has that affected you?

What do you hope to get out of studying Biology here? Do you think you'll get that?

Have you got any idea about the kind of work you might go into?
Do you see yourself continuing in biology in some way or not?

Appendix 11: Biology: second student interview schedule, Environmental Biology

Specific questions re the scientific communications module in Environmental Biology

Talk
Since last time you've done the talk in the Communications Module – how did that go?
How did you prepare for the talk?
Was it easy finding relevant information – how did you go about it?
How did you decide what was relevant?
How did you structure your presentation?
How were you influenced by what other people had done – or what the lecturer said in the weeks before you did yours?
What about the short essay that went with that? (On the same topic?)
Is it different doing the presentation and the essay? In what ways? Do you learn more from one than the other? How does that happen?
What was the main message - if you had to express it as a sound bite?

Longer Essay
Was finding relevant information on the topic easy or difficult? In what ways?
Did you make use of what you'd done in the library session – was that helpful to you?
How did you decide what to look for and what was relevant or not?
What kinds of information did you use?
Any idea about how many references you will have in your final report?

How did you go about putting it together for your essay?
This is a topic you've had to research for yourself - how do you know you're right in what you say?
Did it take a while to sort out? Did you find that different references said different things? What did you do about that?
What would you say are your main conclusions from what you've done?

Are you pretty good at doing something like this where you've got to search things out for yourself, manage your time and put it together – is it something you find hard? Why do you say that? Do you like doing that?

Prof Cedar's module
Since last time you've done the long practical report – what did you have to do?
What did the lecturer really want in that report?
What readings/information did you use?
Did you use any information/resources not directly recommended?
Why? How did you go about finding them?
How did you know that they were useful?
How have you incorporated what you have read into your report?
Do feel fairly confident of doing a reasonable job on the long report? Why do you say that?

Exam – how do you feel about the exam and what are you doing about the exam?

What do you think now about this module compared to the way other modules are done? Is it better or worse for you personally?

How have/do you think you'll do on this module in terms of marks? Will this be better or worse than you normally do?

Assignments
This term you've had a talk to do, an essay and various practical reports and assignments to do in other modules.
In general on your course what do you think makes a good assignment (essay or report)?
When you're doing an assignment what are the good/bad bits? What are the easy/hard bits?

Do you always have to have a conclusion? How do you come to a conclusion?

Information use and sources

The scientific communications module has been about getting you to use different information resources.
Could you run through for me the different types of information resources that you know about that could be relevant to your learning in Biology?

Printed	Activities	People
Books/text books	Lecturer notes	Lecturers
Journals	Practical work	Other students
ejournals	Field work	Experts
Web	Library	
Encyclopaedias	WebCT	

What are these different resources for? How or when would you use them? Which are most helpful for learning? Which would you use most?

One of the things you've had to do is to learn how to cite different items. Why do you think you have to cite the references you've used?
Why do you think scientists and researchers cite what they've referred to when they write?

Do you know how scientific work get published – what the process is? Why is it like this?

You've been searching for things in biology publications, journals and so on.
Is information searching easy? Is it important on your course? Will it be important to you after the course?

What things do you have to keep in mind when you're searching for information?
Do keywords always work? How do you decide what the keyword is?
How do you know if something that turns up in your search is relevant?
How important is it to have the latest up-to-date information? Is that always the best?

What's the point of learning more independently – using different information resources? Is it a good thing or not? In what circumstances would it be a good thing?

In a work situation – what would you do? How relevant is your course and what you do as a student to this?

Questions about broader issues

Knowledge
What sorts of things do you learn as a biology student? (not just in the modules we've talked about but in general)

Are there are a lot of facts to learn in biology?
How much is biology black and white? Right or wrong? How do you feel about that?
Are lecturers always right?

Do you ever *think* about biology-related things outside your course?
Do you ever *talk* about biology-related things outside your course?

Do you have your own views on things you come across in biology? Do you make up your own mind?

Personal
What kinds of things interest you in biology?
How did you first get interested? Are you still interested?

What makes something on your course interesting or not?
Does it help you learn if you are interested in the topic? Does it matter on this course?
Do you ever come across things on the course that you want to know more about?

Learning
What's the best way for you to learn (in biology)?

When you have difficulty in understanding something or it is confusing what do you do?

What things about your course and studying here help you learn? What doesn't help or gets in the way of learning?
Things that you do, that lecturers do, that fellow students do?

How much do you feel you get to manage what you do – plan your own time, take time to do what you want to do etc?

How confident are you in what you know? How do you know when you're right? What about an assignment or report – do you know how well you've done or do you wait for the marks back? Does that help you improve? (including feedback)

Orientation to study/identity
How did you come to be on this course?

How have you changed since you started on this course?
What difference has it made that you're studying biology and not something else such as English or Sociology or Engineering? How has that affected you?

What do you hope to get out of studying Biology here? Do you think you'll get that?

Have you got any idea about the kind of work you might go into?
Do you see yourself continuing in biology in some way or not?

Appendix 12: Biology: Email requesting student marks

Dear

It's Liz here, who you'll remember from the interviews last term. I hope your exams have gone well and I guess you're now busy with a new set of modules. The data I got from the interviews is really interesting and it's really valuable to me in my research.

There is a bit of information which would really help me in my research. It's to do with your course marks. As you can imagine when you're writing up educational research, if you don't mention what marks students got people often say – oh well I expect you only interviewed the really good students (or only the ones who weren't doing very well!). Marks are confidential of course so I can only get them from you!

If you're OK about it, could you answer the following 4 questions please?

1. What mark did you get in Professor Cedar's plant module?
2. What mark did you get in the scientific communications module?
3. What was your average mark across all the modules you did last semester?
4. Was your overall mark better, worse or about the same as you expected?

If you've got time I'd be really pleased to receive any other comments you have :
Why do you think you did better or worse than expected overall?
What do you think got you a good mark or lost you marks in the plant module?
What do you think got you a good mark or lost you marks in the communications module?

Any other comments?

Thanks very much

Liz

Appendix 13: Biology: student marks

	Plant Physiology	Scientific Comms	Semester Average
Biology[1]			
Brian	55%	70%	66%
Becky	65%	44% (38%)[2]	54%
Bridget	59%	67% (68%)	65%
Bethany	46%	58% (58%)	43%
Env Biology			
Beatrice	42%	72%	53%
Briony	35%	60%	n/a
Bernadette	51%	74% (68%)	59%

1. Marks not available for Brendan
2. Essay marks in brackets where available

Appendix 14: Social Science: email seeking student volunteers

I'm contacting you as a student on Anne Elder's Anthropology/Area Studies module to ask if you would be willing to be interviewed as part of a research study. (If you're on the WebCT list for the course but not actually taking it, please ignore this message!).

I'm a part-time PhD student in Education looking at aspects of learning in universities from a student perspective. The interviews will last up to an hour and they will be about what you are doing on Anne's course and other courses that you are taking at the moment. I'm especially interested in the independent work that you do such as reading and finding information for essays and assignments.

There would be two interviews – one very soon I hope and another before the end of term. Anyone who takes part in two interviews will get a small payment of £20.

Please get back in touch with me by email if you are willing to be interviewed and we'll discuss the detail and make arrangements. Tuesday , Wednesday or Thursday, 4th – 6th February, next week are provisionally arranged for interviews but other days are possible.

Email is probably easiest (liz.mcdowell@unn.ac.uk) but you are also welcome to phone my work number, 0191-215-6446 (it has voice mail).

Appendix 15: Social Science: email making arrangements for first interview

Dear <student name>

Last week in Anne Elder's lecture you volunteered to be interviewed for my research. Thanks for being willing.

Just to remind you - I'm a part-time PhD student in Education looking at aspects of learning in universities from a student perspective. I'm especially interested in the independent work that you do such as reading and finding information for essays and assignments. (I'm not being more specific at the moment because I don't want you to feel that you have to prepare for the interview. It's just talking about what you normally do and what you think about it. Usually students find it quite interesting!)

The interviews will concentrate mainly on what you are doing in Anne's module and in others that you are taking at the moment. I would like to arrange an interview next week and a second one later on. Each interview could last up to an hour and it will be tape-recorded. I need recordings so that I can analyse all the interview data that I collect but what you say is confidential as you will not be identified in my thesis or to anybody else such as your lecturers. If you do the two interviews you will get a small payment of £20.

So – I hope you're available to be interviewed at some time next week. I can be in Arden all day on Tuesday 4th, Wednesday 5th and Thursday 6th February. Please let me know when you're free on any of those days so that I can schedule the interviews. If none of these are possible we can make other arrangements. The interviews will probably be in the Area Studies Building, but I'll let you know.

When you reply please let me know the best way to contact you to confirm arrangements – this email? Or another email address? A mobile number could also be helpful.

My work phone number is 0191-215-6446 (it has voicemail). Mobile is: 07940 545211 (but I tend not to have it switched on when I'm at work.)

If you're not sure and have any questions please just get back in touch.

Thanks

Liz

Appendix 16: Social Science: data sources

			Dates
Staff interviews	Dr Elder	Module Leader,	17/6/02
	Professor Oak	Subject Lecturer, Anthropology/Area Studies module	12/3/03
	Dr Yew	Head of Department, Area Studies	1/4/03
	Dr Ash	Director of Undergraduate Programmes, Area Studies	1/4/03
	Mr Maple	Liaison Librarian for Anthropology	12/3/03
	Mr Spruce	Liaison Librarian for Area Studies	12/3/03
Student interviews	Sadiyya Stuart Salim Shahira Sean	Area Studies[2]	First interviews: 5-6/2/03; 20/2/03 Second interviews: 30/4/03; 1/5/03; 8/5/03
	Sophie Selena	Anthropology	
Class observation notes	AAS module seminars		31/10/02; 23/1/03; 20/2/03; 27/2/03; 1/5/03; 8/5/03
Discussion notes, Dr Elder	Notes from discussions pre and post class sessions and from two other meetings		All class sessions; 25/6/03; 19/11/03
Documentary sources	• WebCT materials for AAS module including: course schedule; resources, reading lists and Web links for each topic; assignment briefs • Handouts from classes attended • Student dissertation handbook (Anthropology), including assessment criteria • Undergraduate Handbook (Area Studies) • Guidelines and assessment criteria for essays and dissertations (Area Studies Student booklet) • Marking sheets for essays and dissertations (Anthropology & Area Studies) • Library student handouts and guidance materials (Anthropology) • Copy of student essay (Selena) • Copies of dissertation abstracts and bibliographies (Selena, Shahira, Stuart, Sadiyya)		

[2] Students taking the degree in Area Studies undertook different combinations of social science/humanities subjects such as Politics and History, regional studies and language studies.

Appendix 17: Social Science: first student interview schedule

Background/Introduction

What degree are you doing?
What year are you in?
What else are you studying this year apart from Anne Elder's module?
Are you doing a dissertation?

I'm interested in the independent work that you do on your own, outside lectures and seminars, especially reading and finding information for yourself – for essays for example. I'm starting with Anne's course but we can talk about other things you do and compare them.

Anthropology/Area Studies module
Why did you choose this AAS module?
Can you tell me about the module – what do you have to do in the course?
Is it different to other modules or subjects that you take?

Reading
There are reading lists (every week) – how do you use those?
What is the point of having reading lists?

How do you go about reading – do you take notes, mark the text or just read it?
Would you be able to say now what a particular book etc was about if you were asked?
What do you think you need to remember from these readings? Why? Do you remember them quite well?
Have you found the readings interesting?

What about the module textbook - is it useful? is it important to have a module textbook? Do you usually have a module textbook?

How is it different learning from reading compared to learning from lectures or seminars?
In this module is there more or less reading to do than normal?
Is that a good thing or a bad thing in your view?

WebCT
Do you use the WebCT site for the module?
What kinds of use have you made of the Web links provided for the module?
Amongst the book listings there are bibliographies – have you used them?

Seminars
What sorts of things do you have to do in preparation for seminars? Such as :
Reading
Preparing a presentation

> When I came to the class there was a small presentation to do - how did you go about deciding what to talk about and how did you find the information?

Essays
Can you tell me about your formative essay?
What did you do that essay on?
What made you choose that?
How did you make a start?

Did you get help from your lecturer at any point when you were doing this formative essay?
Is this what you would normally do?

Information seeking
Was finding relevant information easy or difficult? In what ways?
How did you go about it?

How did you decide what to look for and what was relevant or not?
What kinds of information did you use? Books /text books/
Recommended readings
Bibliographies on WebCT
Similar essays you'd done before
Academic Journals,
Newspapers, papers
Web - via WebCT links or other?
Encyclopaedias, reference books etc.
Any idea about how many references you had in your essay?
Does the number matter?
Does it matter what kinds of books, journals and so on you've used?
Do they have to be up to date?

Information skills
Have you ever had any guidance in how to use the library or literature searching at any point in your degree?
Can you remember what happened? Did that help you?

Putting it together
Did you find the books and materials you'd got together easy to understand?
How did you go about actually writing your essay?
How did you structure it? What did you say?
Did you have a specific argument? What did you conclude?

Being right
When you have to research a topic for yourself, how do you know you're right in what you say?
Does it take a while to sort out?
Do you find that different authors or books say different things? What do you do about that?

Do you think you've done well in this essay? Why?

Do you feel a sense of satisfaction in it? Just glad it's done? What have you learnt from doing it?

Essays in general/in comparison
Was this formative essay different in any way from the essays you normally do?

Do you feel you learn very much from writing essays?

Exam

Have you thought about the exam in the module yet?
What do you expect it to be like?

TIMING FOR SECOND INTERVIEW

Appendix 18: Social Science: second student interview schedule

Introduction

Three sections:
AAS module
Dissertation
General background about your course and yourself

AAS Essay

Last time we spoke you had recently handed in your formative essay. Did the mark and the feedback for the formative essay affect the way you approached the summative essay in any way?

Which title did you do for your summative essay? What made you choose that one?

How did you go about doing that essay?
Did you make a plan for your essay?
What kinds of information did you use? (Books ; reading list; Web/Internet incl WebCT; journals/ejournals)

How did you structure your essay?
Did you have a specific argument? What did you conclude?

Did you feel by the end that you really understood the subject and knew what you were talking about?
Do you think you've done well in this essay? Why?
Do you feel a sense of satisfaction in it? Just glad it's done?
Was it interesting? Does that matter to you?

Now preparing for the **exam**?

For non-specialist Anthropology students:

Now that you've nearly completed your Anthropology course, what have you found out about Anthropology as a subject? What kind of subject is Anthropology?

Dissertation

General

What did you do for your dissertation? (single/double module?)
What made you choose that?
What has it been like doing a dissertation?
Is it very different from other things you've done on your course, such as essays? In what way?
Is it one of the best/one of the worst things you've done? Why?

Process

How did you get started on your dissertation ?

Information seeking

Was finding relevant information easy or difficult? In what ways?
What kinds of information did you use? (Books; reading list; Web/Internet incl WebCT; journals/ejournals)
How did you decide what to look for and what was relevant or not?
Any idea about how many references you had in your essay?

Planning/writing

Did you do it stages, fieldwork or collecting data, reading/literature review, then writing or doing everything in parallel?

Did you make a plan for your dissertation?
What sort of plan? How did you use it?

Do you find that different authors or books said different things? What did you do about that?
Did it take a while to sort out?
How did you link your own fieldwork with what was in books and so on?

What did your dissertation supervisor do?
Did you get help from anyone else?

How did you go about actually writing your dissertation ?
How did you structure it? What did you say?
Did you have a specific argument? What did you conclude?
When you think about the topic now and your conclusions – is it as you thought at the beginning or have you changed your ideas?

Outcomes/reflection
Did you feel by the end that you really understood the subject and knew what you were talking about?
Do you think you've done well in your dissertation? Why?
Do you feel a sense of satisfaction in it? Just glad it's done?
Has it been a personal project for you?
Was it interesting? Does that matter to you?
What have you learnt by doing it?

Questions about broader issues

How did you come to be on this course?

Nature of subject & relationship to it
What kind of subject is it – how would you describe it?

What kinds of things interest you in your course?
What makes something on your course interesting or not?
Does it help you learn if you are interested in the topic? Does it matter on this course?
Do you ever come across things on the course that you want to know more about?

Do you ever *think* about things you've come across on your course - facts, ideas, theories etc when you're not actually doing academic work, just in everyday life? Such as?

Do you ever *talk* about things from your course to other people? Such as?

Do you have your own views and opinions on things you've come across?

How have *you* changed since you started on this course?
Has it made a difference that you're studying Area Studies/Anthropology and not something else such as English or Sociology or Engineering?
What sorts of things have you learnt doing your Area Studies/Anthropology degree?

Now that you're coming to the end of your degree, what do you think you're really got out of studying your degree here, what will you take away from it?

Have you got any idea about what you're going to do next?

In future, will you still have an interest in the kinds of things that you've been occupied with over the past 3 years on your course?
Will they still be relevant to you?

Appendix 19: Social Science: essay guidelines, AAS

For both the formative and summative essays, a small number of titles were given and students chose one. The word limits were 2,000 words for the formative essay and 4,000 words for the summative.

Dr Elder provided a detailed list of assessment criteria supplementing the standard assessment criteria used in the department. This table was provided to students.

Basic literacy (A Level key skills)
- Punctuation
- Spelling
- Grammar

Organisation and style
- Clear progression
- Clear sections[1]
- Clear paragraph structure
- Rational development of topic
- Academic language
- Balance between quotes and paraphrasing
- Separation of author's voice from sources

Word processing skills
- Layout (1.5 or double spacing, appropriate font, style and size)
- Footnoting/endnoting
- Fonts (italics, bold)
- Page numbering
- Header/footer[1]

Sources
- Range of sources (books, articles, journals, internet etc)
- Appropriateness of sources (primary, secondary, academic, popular)
- Use of ethnographic examples where possible
- Use of appropriate illustrative material and diagrams[1]
- Acknowledgement of sources (preface, citations)

Academic referencing
- Citation styles and formats (in-text, footnote/endnote)
- Quotation format and sourcing
- Information documentation
- Bibliographic format

Research skills
- Awareness of previous research[2]
- Use of general theory[2]
- Justification for research (problem oriented)
- Clear methodology[2]
- Coherence of argument
- Quality of analysis or interpretation
- Significance of conclusions/creativity[1]

Notes:
1. Flagged as optional or variable
2. Flagged as not essential

In addition to this table of criteria, Dr Elder stressed in her guidance a number of essential features of an essay:

- Originality – essential in order to gain good marks
- Conclusion – essential in all essays and described as *'a summary of your detailed answer'*
- Relating relevant ethnographic material and theoretical perspectives
- Evidence of your '*personal contemplation of the topic'*
- Bibliography – essential. Dr Elder referred to this more than once in her guidelines and at the beginning of the list of essay assessment criteria she wrote:
  'Work without citations and bibliography for data and source information ... will not be considered 2(1) level quality. It will automatically be marked at 2(2) level or lower.'

Dr Elder's marking sheet had only four headings with space for the assessor's comments under each:

- The research question/data (range, relevance, accuracy, originality, quality of research, effectiveness of research)
- Analysis/interpretation (range and discussion of methods, originality, quality of argument backed up with relevant anthropological data, structure and organisation of research)
- Argument/evaluation (range, relevance, originality, coherence, use of literature, data and theory, critical commentary)
- Language/style (quality of writing, structure and clarity of presentation; range, appropriate use, presentation and acknowledgement of sources)

Appendix 20: Social Science: dissertation guidelines Anthropology and Area Studies

Dissertation

Students in the study were undertaking a dissertation within either the Anthropology or the Area Studies departments. The aims and nature of the dissertation did not vary significantly between the two departments. Most students did a 'single module' dissertation which culminated in a written piece of 10,000 words. This occupied one-sixth of their study time and contributed one-sixth of their marks in their final year. Students doing single honours Anthropology could choose to do a double module dissertation. This was 16,000 words in length and occupied one-third of their time in the final year. Students each had a dissertation supervisor and were entitled to 4 hours supervision time over the course of the year.

Summary from Dissertation Module Guide (Anthropology)[3]

The dissertation can be viewed as the culmination of the study of Anthropology where the ideas and methods learned in the classroom are put into practice. The topic of the dissertation is the one part of the curriculum that is entirely selected by the student, with data they collect. In choosing a topic, an essential consideration is their personal interest in the subject area within which it falls. The dissertation allows students to undertake a substantial piece of supervised written work featuring research into an anthropological topic of their choice. It develops students' abilities to plan and manage their own learning and facilitates students' development of research skills. The dissertation provides the student with an opportunity to apply their knowledge to a topic in anthropology.

Anthropology Dissertation Assessment Criteria
(from Student Dissertation Guide)

1. Structure:
   - Clear identification of research question, also the presence of clear sound objectives, logical structure, evidence of relevant analysis
   - Abstract – clarity and conciseness, adequacy as a synopsis
   - Conclusion
2. Execution:
   - Approach to the research question
   - Analysis and/or interpretation
   - Argument and evaluation – relevance and depth
3. Presentation
   - Language and style – formal presentation
   - Quality and relevance of the bibliography

On the marking sheet (included as an Appendix in the Student Guide) assessors are asked to comment on:

1. Effectiveness of research
2. Quality of data
3. Discussion of methods
4. Use of theory
5. Breadth of reading
6. Quality of interpretation and analysis
7. Quality of argument and organisation
8. Quality of writing
9. Correctness and completeness of citations and bibliography
10. Quality of presentation

---

[3] The summary in Area Studies documentation was almost identical

Assessment Criteria for dissertation in Area Studies from the 'Guidelines for students' booklet.

In this listing the description of a first class dissertation has been included for further clarification.

1. The research question. The extent to which the focus of the dissertation is expressed and specified. This need not be in the form of an actual question; an acceptable alternative is a hypothesis.
   1st Class: The research question is stated with clarity, coherence and precision in the early part of the dissertation and is sharply focussed, leaving it open to effective treatment within the word limit.
2. Approach to research question. The extent to which the dissertation appropriately addresses and develops the specific research question, including the collection of any relevant information.
   1st Class: The approach used is extremely well chosen and appropriate to the research question.
3. Analysis/interpretation. The extent to which relevant materials, sources, data and evidence, including where appropriate, sources in regional languages, are considered appropriately.
   1st Class: An extremely effective analysis/interpretation is carried out with considerable skill and understanding. Where relevant there is extensive use of source material in regional languages.
4. Argument/evaluation. The extent to which the dissertation develops an argument relevant to the research question from the materials/information considered.
   1st Class: A convincing argument which addresses the research question is well developed, well organised and clearly expressed.
5. Language and style. The extent to which the dissertation demonstrates a sophisticated use of English, a sound grasp of grammar, and an acceptable writing style.
   1st Class: Sophisticated use of English. Paragraphs/sections in homogeneous units, with a clear and coherent writing style.
6. Conclusion. The extent to which the dissertation incorporates a conclusion consistent with its argument, not necessarily in the form of a separate section.
   1st Class: A conclusion is clearly stated, is relevant to the research question and is consistent with the argument or explanation presented in the dissertation. Where appropriate, the conclusion clearly indicates unresolved questions and new questions that have emerged from the research.
7. Formal presentation. The layout, references and bibliography, and, where appropriate, the table of contents, appendices title, quotations, illustrations and general organisation.
   1st Class: The formal presentation of the dissertation is excellent
8. Abstract. The adequacy of the formal abstract as a synopsis of the dissertation.
   1st Class: Within the abstract, the research question, the scope of the investigation and the conclusion reached are all clearly and coherently stated.

Appendix 21: Social Science: release of marks information form

Release of information

I agree that my marks for the AAS module, the dissertation and my overall final degree classification may be released to Liz McDowell for the purposes of her doctorate research study in which I have participated as an interviewee. This is on condition that I have been informed of the marks myself before they are released.

Name:

Signed:

Date:

Appendix 22: Social Science: student marks

	AAS module	Dissertation	Degree Class
Sadiyya	62%	75%	2(1)
Stuart	74%	65%	2(1)
Salim	58%	48%	3
Shahira	67%	68%	2(1)
Sean	73%	78%	2(1)
Sophie	74%	74%	1
Selena	70%	73%[1]	2(1)

1. Selena's dissertation was ranked third in a departmental competition for best undergraduate dissertation

Appendix 23: Biology: N6 coding structure

(1) /Base data

(1 1) /Base data/Intvw
(1 1 1) /Base data/Intvw/Intvw1
(1 1 2) /Base data/Intvw/Intvw2

(1 2) /Base data/Course
(1 2 1) /Base data/Course/Biology
(1 2 2) /Base data/Course/EnvBiol

(1 3) /Base data/Gender
(1 3 1) /Base data/Gender/Male
(1 3 2) /Base data/Gender/Female

(1 4) /Base data/Name
(1 4 1) /Base data/Name/Bernadette
(1 4 2) /Base data/Name/Becky
(1 4 3) /Base data/Name/Bridget
(1 4 4) /Base data/Name/Brian
(1 4 5) /Base data/Name/Brendan
(1 4 6) /Base data/Name/Bethany
(1 4 7) /Base data/Name/Briony
(1 4 8) /Base data/Name/Beatrice

(2) /Orgn
(2 1) /Orgn/time

(3) /Activities

(3 1) /Activities/assigs
(3 1 1) /Activities/assigs/Written
(3 1 1 1) /Activities/assigs/Written/comessay
(3 1 1 2) /Activities/assigs/Written/libessay
(3 1 1 3) /Activities/assigs/Written/longprac
(3 1 1 4) /Activities/assigs/Written/100words
(3 1 1 5) /Activities/assigs/Written/Writing
(3 1 1 6) /Activities/assigs/Written/Dissertation
(3 1 2) /Activities/assigs/Talks
(3 1 2 1) /Activities/assigs/Talks/Comtalk
(3 1 2 2) /Activities/assigs/Talks/Libtalk
(3 1 3) /Activities/assigs/Structure
(3 1 4) /Activities/assigs/Conclusion
(3 1 5) /Activities/assigs/References
(3 1 5 1) /Activities/assigs/References/Citation
(3 1 5 1 1) /Activities/assigs/References/Citation/Why?
(3 1 6) /Activities/assigs/Interest

(3 2) /Activities/Classes
(3 2 1) /Activities/Classes/lectures
(3 2 1 1) /Activities/Classes/lectures/notetaking
(3 2 2) /Activities/Classes/pracs
(3 2 3) /Activities/Classes/infoinstrn
(3 2 4) /Activities/Classes/fieldwork
(3 2 5) /Activities/Classes/plantmodule
(3 2 6) /Activities/Classes/Comms module

(3 3) /Activities/Exams
(3 3 1) /Activities/Exams/Revision

(4) /Lecturers

(5) /Info
(5 1) /Info/Jnls
(5 1 1) /Info/Jnls/eJnls
(5 1 2) /Info/Jnls/HowPub
(5 2) /Info/Library
(5 3) /Info/Searching
(5 3 1) /Info/Searching/selecting
(5 4) /Info/Web
(5 5) /Info/RecRdg
(5 5 1) /Info/RecRdg/Textbooks
(5 6) /Info/Uptodate
(5 7) /Info/Reading
(5 7 1) /Info/Reading/notetaking
(5 8) /Info/Books

(6) /Lrngviews
(6 1) /Lrngviews/independence
(6 2) /Lrngviews/helps

(7) /StudyBiol
(7 1) /StudyBiol/Subject
(7 2) /StudyBiol/Choice
(7 3) /StudyBiol/Career
(7 4) /StudyBiol/Interests

Appendix 24: Social Science : N6 coding structure

(1) /Base data
(1 1) /Base data/Intvw
(1 1 1) /Base data/Intvw/Intvw1
(1 1 2) /Base data/Intvw/Intvw2

(1 2) /Base data/Course
(1 2 1) /Base data/Course/AreaStud
(1 2 2) /Base data/Course/LangArea
(1 2 3) /Base data/Course/Anthrop

(1 3) /Base data/Gender
(1 3 1) /Base data/Gender/Male
(1 3 2) /Base data/Gender/Female

(1 4) /Base data/Name
(1 4 1) /Base data/Name/Selena
(1 4 2) /Base data/Name/Shahira
(1 4 3) /Base data/Name/Salim
(1 4 4) /Base data/Name/Stuart
(1 4 5) /Base data/Name/Sean
(1 4 6) /Base data/Name/Sophie
(1 4 7) /Base data/Name/Sadiyya

(2) /Orgn
(2 1) /Orgn/time

(3) /Activities
(3 1) /Activities/assigs
(3 1 1) /Activities/assigs/written
(3 1 1 1) /Activities/assigs/written/essays
(3 1 1 1 1) /Activities/assigs/written/essays/formative
(3 1 1 1 2) /Activities/assigs/written/essays/summative
(3 1 1 1 3) /Activities/assigs/written/essays/Choice
(3 1 1 2) /Activities/assigs/written/projects
(3 1 1 3) /Activities/assigs/written/translatns
(3 1 1 4) /Activities/assigs/written/disst
(3 1 1 5) /Activities/assigs/written/planning
(3 1 1 6) /Activities/assigs/written/Writing
(3 1 2) /Activities/assigs/structure
(3 1 3) /Activities/assigs/conclusion
(3 1 4) /Activities/assigs/references
(3 1 4 1) /Activities/assigs/references/citation
(3 1 4 1 1) /Activities/assigs/references/citation/why?
(3 1 5) /Activities/assigs/interest
(3 1 6) /Activities/assigs/talks
(3 1 7) /Activities/assigs/argument

(3 2) /Activities/classes
(3 2 1) /Activities/classes/prepforclass
(3 2 2) /Activities/classes/infoinstrn
(3 2 3) /Activities/classes/lectures

(3 3) /Activities/exams
(3 3 1) /Activities/exams/revision

(3 4) /Activities/modules
(3 4 1) /Activities/modules/AAS
(3 4 1 1) /Activities/modules/AAS/background
(3 4 2) /Activities/modules/othermod
(3 4 3) /Activities/modules/modchoice

(4) /lecturers

(5) /Info
(5 1) /Info/Jnls
(5 1 1) /Info/Jnls/eJnls
(5 2) /Info/Library
(5 3) /Info/Searching
(5 4) /Info/Web
(5 5) /Info/RecRdg
(5 6) /Info/UptoDate
(5 7) /Info/Reading
(5 8) /Info/Books
(5 9) /Info/WebCT
(5 10) /Info/primary sources

(6) /Lrngviews
(6 1) /Lrngviews/independence
(6 2) /Lrngviews/helps

(7) /StudySubj
(7 1) /StudySubj/Subject
(7 2) /StudySubj/choice
(7 3) /StudySubj/career
(7 4) /StudySubj/interest

Appendix 25: Biology: Student summaries

Beatrice
Becky
Bernadette
Bethany
Brendan
Brian
Bridget
Briony

Beatrice
Course: Environmental Biology

1 General and background issues

1.1 Choice of course and interests

Beatrice wanted to study Marine Biology but her A level grades were not good enough and she accepted a place on Environmental Biology. She is pleased now because she thinks Marine Biology is harder whereas on her current course she is '*middle to top*' which has given her confidence. She has been able to take some marine biology options and has chosen topics from marine biology in some of her essays and when she can do that:

> *'I love learning about it, and I know so much, I've got books, my own books at home that I've bought or I've been given as presents, so I read them, you know, in my own time anyway.'*

She has visited lots of aquariums and subscribes to Web magazines from some of them. She says she's always 'going on about' these things to friends outside of the course.

1.2 Career plans

Beatrice had found the careers elements of the communications module interesting. It had made her think more about getting practical experience. She knew that she wanted to use her biology and travel in whatever job she did but she had no definite ideas. She'd thought of things like conservation or research helping endangered species.

1.3 Nature of subject

Beatrice described biology as hard work and competitive as a student. As a subject she said:

> *'you need to understand concepts and theories and be able to apply them to ecosystems ... [it's] interesting, very, very informative, I can imagine you will never stop learning, you'll never stop learning new facts.'*

She likes to debate things such as ethical issues and aspects such as genetic engineering which are very controversial :

> *'there are facts, that you plain and simple need to know, but there are always opinions you can have and I think they like us to have opinions. And to use them, as long as you've information to back it up with.'*

2. Plant Physiology module

2.1 Lectures & learning from lectures

Beatrice likes to keep her lecture notes organised because that helps her with her revision. She writes brief notes and then writes them up afterwards. Although she knows she should supplement them by reading it is difficult to find time to do that. A lecture doesn't give you enough information for the exam but if it is well-structured and the lecturer uses overheads it helps. If they just stand and talk, you could take down the wrong information or get confused. Beatrice does not like the fact that Professor Cedar has reduced the number of lectures. In a lecture, the lecturer can explain things more clearly, whereas when you're reading a book there is no one there to explain to you.

2.2 Recommended and wider reading

Beatrice started trying to do the reading for the module but found that she did not have time to do it. She also felt that there was not enough guidance from Professor Cedar:

> *'Because this book is four hundred pages, you could easily read the wrong thing or read too much into it and try and learn too much detail and not learn enough detail. I don't think it's specific enough, telling us what we need to learn and how in depth we need to learn it.'*

2.3 Practicals

Beatrice thinks that she learns most from practicals. She enjoys them and because it is '*hands on*' it helps her to remember and '*link up the ideas*'.

2.4 Exams and revision
Beatrice hates exams and is not very good at them. She prefers coursework and does better in that. Beatrice prefers not to cram all her reading and revision into too short a time as she thinks she learns it better if she goes over it more slowly but by December she had still not done very much reading to supplement lectures so she was worried about the amount she would have to do over the Christmas holiday. She was panicking about the exams. She has been helped by doing revision together with a friend on the course.

3 Scientific communications module

3.1 Essay
Beatrice got her second choice topic for the essay and at first she thought it would be boring. She found talking to the module lecturer about it was helpful. It was a wide subject and she felt it was manageable. Beatrice finds getting started on an essay is hard and so having to do a reference list first was helpful. She said:

> *'I prefer my independent learning because I get to know what I want to learn. Well you know within reason, so I enjoy it.'*

She enjoys reading but found some of the reading for the essay hard with difficult words and Latin terms which she looked up. She explained that she wouldn't put them in her essay:

> *'I won't use those words, I will put it into slightly more simple English, 'cause I don't think I'm expected to write at that level yet, and I don't think it's worth trying to because it'll just look like you've copied it.'*

Once she had done her essay she felt confident that she understood the topic and could talk about it.
Beatrice thought there should always be a conclusion in an essay which she described as 'summing up' but also said she might end with a question or a '*twist at the end*'.
She enjoys doing essays:

> *'I love writing the essay and wording it and, because I like to try and be imaginative with my English and try and be a bit different. I really enjoyed researching it and reading through it and then deciding what I wanted to use, like looking for quotes and things like that.'*

3.2 Presentation
Beatrice was given an article relating to marine biology on which to base her presentation, so she was pleased. She found it easy to pick out the main points of the article and she thought about what somebody would really want to know. She found it very interesting to learn how to give a talk and see how other people did it. She practised a lot beforehand and enjoyed giving her talk, even though she expected to be really nervous. Her mark was 85%.

3 Information Use
In her essay she wanted some specific case studies or instances of ant-plant symbiosis.
She started with books and got one 'main' book which was 'brilliant'. It went through various types and aspects of ant-plant symbiosis and also had pictures that she could use.

4.1 Information resources
Beatrice has just been introduced to journals for the first time. She thinks they are useful because you can home in on a specific topic that you need or want to read, not like using a 'big book'. She also says that journal articles are better because they are based on 'proper proof through research and experiments' and give you evidence and statistics to put into your assignments. Beatrice also thinks that the Web is useful as long as you use 'respected sites'.
When asked if up to date information was important, Beatrice said that lecturers like you have up to date references. She tries to have a range and sometimes uses older material to show how things have changed.

4.2 Searching for information
Beatrice attended the information skills session in the communications module which she said was very interesting. She learnt a lot of new things and began to put them into practice immediately using the library catalogue and databases such as CSA.
If she looked at the abstract on the screen, she could decide whether it was relevant to her.
She also said: '*some of the abstracts I'm going to use and I'm not actually going to use the*

actual book'. Beatrice had a lot of problems after she had done her searching in finding the journals in the library for her essay and ended up not using as may as she would have liked. She felt that she need more library skills sessions.
Beatrice also searched the Web using a search engine although she said that this is not really allowed because the information is not '*scientifically proven*'. She still thinks the Web is useful because it helps you to understand. She used to be very nervous about going into the library and she still says:

> *'I generally don't like doing it [information searching] in the library, I feel a bit pressured in there, like people are watching you and people are waiting around, I prefer to do it at home'*

4.3 Citation & referencing

In the past Beatrice used to just put a bibliography at the end of assignments '*sometimes you can just put loads of references down to look good*' but now she was required to quote or to cite references within the essay. She found that different lecturers still wanted different things in relation to exact layout, italics and so on.
When asked why citation was important Beatrice said:

> *'Well it's illegal if you quote, you know, copyright and all that, it's illegal if you quote without acknowledging'*

She said that there was a big emphasis on plagiarism but she was uncertain:

> *'sometimes it's just not very clear when you have to quote if you've got ideas. Because you might have, I mean you're going to have all your ideas from somewhere, aren't you, that's the thing, so I got extremely frustrated with when I had to quote and when I didn't. I found that difficult.'*

Beatrice thinks that this is an important skill to learn because students might go on to write journal articles themselves and would need to know what to do.

5 Studying and the course

5.1 Organisation/time

Beatrice has been unwell and had to visit hospital quite often and this has made it difficult for her to fit all her course work in. She mentioned several times that she didn't have enough time, especially for reading. However when asked directly she said that it was a matter or managing time and lecturers did their best to help: '*you fit it in and do it somehow.*'

5.2 Peer roles

Beatrice said that if she was stuck on something she'd probably ask a friend. Sometimes she'll ask someone to explain something and it's useful because they might explain it in a different way. She has a particular friend who is '*very bright*' and they always revise together. Beatrice sometimes works with a group of friends on an assignment. They share ideas and it helps everyone to understand. She often goes into the library with a friend and then feels more confident and they help each other out with searching. Beatrice sometimes asked friends and family members to read over her work before she submits it.

5.3 Learning

Beatrice enjoys independent learning such as the essay where '*we get to go and choose a topic we want to look at and look into it in our own way.*' She much prefers coursework to exams because with coursework you can go over it again and do your best. When it came to lecture/exam courses Beatrice was more ambivalent. She knew that she should be more independent but prefers it if all the information is given to them in lectures. This seems to be related to her worries about exams because she also says that it is more satisfying *to 'try and figure things out myself, you know, work through something'*. She prefers not to simply memorise:

> *'when I learn it parrot fashion with all the long words and everything I can't apply it, whereas if I understand it then I can apply it'*

Beatrice saw skills as the main learning from the communications module and she said this was helping you to become a '*proper scientist*'

Becky
Course: Biology

1 General and background issues

1.1 Choice of course & interests

Becky had considered a number of subjects before applying to do Biology. She was pleased to have chosen it as she thought it was probably more interesting than the alternatives. She likes learning new things and being able to say to friends – guess what I learnt today? She gave the example of telling them about a giant squid. If something is interesting it sticks in her mind and is easier to learn. She likes to watch biology related programmes on TV and gets excited about them and friends say she is '*a Biology geek*'.

1.2 Career plans

Becky was considering applying to go to Borneo to work on a project there for the summer and joining a local conservation group to get work experience. She is still very vague about career plans but would like to do something biology related such as research, conservation, wildlife trusts, especially working on the animal side. However she's also considering going into teaching.

1.3 Nature of subject

Becky thinks that Biology is a hard subject because, compared to her friends doing other subjects there is a lot of work to do. She thinks it is a very factual subject:

> *'if you just want to just pass then it's like sort of, you've got to know the ideas, but to get a good mark there's a lot of facts to learn.'*

She likes the subject because it is factual and clear cut*: 'you just either know it or you don't'*. Some of her friends who do other subjects have to write about what they think and give opinions:

> *'I'd much rather have a structural essay, put in my points and then finish. No faffing about, no you know, just writing for the sake of it.'*

2. Plant Physiology module

2.1 Lectures & learning from lectures

Becky feels that you are expected to do more outside Professor Cedar's lectures because there are less lectures and because he '*just talks*' and it's hard to make notes. She finds it hard to concentrate especially if it isn't interesting. In some other cases the lecture handout will give you all you need to know. She usually copies out her lecture notes. Becky said she learns better from a lecture or a because there will be '*sentences or paragraphs that I'll learn'*. Learning from reading is more difficult.

2.2 Recommended and wider reading

All lecturers expect you to do extra reading but Becky doesn't always do it because it takes up time. In a lecture or handout you have a condensed version and that's precisely what you need for the exam. The reading Professor Cedar's course is broader: '*you're not learning facts, you're more sort of learning a general overview with reading, so it's much harder to revise.*'

2.3 Practicals

In practicals you are told what to do. You got what is basically a question sheet and to write up your practical you just answer the questions.

2.4 Exams and revision

Becky goes over her lecture notes, perhaps expands them in places and these form the basis for her revision. If she didn't understand something she would write it out or draw it out. Most of her revision was going to be done at Christmas. She didn't think that reading from textbooks would really be needed in exams and she wouldn't make notes from that. Becky thought she would struggle with revising for the plant module. In other modules she would have to spend a

lot of time learning facts but in Professor Cedar's module you're not told exactly what to learn:

> *'if you know you have to know these ten A4 sides word for word, you can do that, but if you know you have to basically understand the whole of a textbook it's much more harder.'*

She preferred knowing exactly what exam questions wanted whereas in the plant physiology exam some questions might ask you to '*discuss*'.

3 Scientific communications module

3.1 Essay

Becky chose two essay titles and got the one she preferred. It was less interesting but she liked the supervisor and the other topic was probably harder. She described her supervisor as: helpful, funny, someone who knows what's going on, makes an effort for students and is easy to get hold of. She thought he would help her '*properly*'. When Becky started on the essay she found the topic interesting and learnt a lot about it. She said she could '*talk about aphids all day*' and had enjoyed it.

Becky did not attend the briefing for the scientific communications module because it was in induction week and she assumed it wasn't important. She relied almost entirely on Web resources and one textbook given to her by her supervisor. She only found out from her supervisor the day before it was due that she should have used journals. She did some rewriting overnight but she thought it was a really bad essay.

Usually if she had put a lot of work into an essay she felt confident about getting a good mark.

3.2 Presentation

Becky planned to listen to a few other people's talks before she started to prepare hers in order to get some ideas about how to do it. She chose the topic of female perception of male attractiveness influenced by a friend doing psychology who was doing a project on male perception of female attractiveness. She was not pleased that she had to attend every week to listen to other people's talks but needed the marks given for attending because she knew her essay was bad. She mainly relied on the Web to find information but looked for reports of experiments and research and organised her talk according to what she found.

4 Information use

4.1 Library & information resources

Becky's main information resources are recommended textbooks. When she has to find things herself she uses the Internet. She knows that lecturers say it is unreliable but says: '*I don't see why someone would lie*'. She finds it quick and easy to do a search, find what she wants, print off relevant parts, then it's all ready for her to write the essay. Journals are much harder to read. She would prefer to use more specialised books if she could not use the Internet. When asked if up to date information was important, Becky said that in some topics you needed to know the latest information because it was changing every day but in others *'they've found it out and it's known to be true'.*

4.2 Searching for information

Becky relied heavily on the Web. She found it very difficult to use the journal databases, to find things, and to download and print. She found using the Web much easier and for her presentation found a lecture that someone had done on the topic.

Becky avoids writing about aspects which are '*too hard*' or where the information is contradictory.

4.3 Citation & referencing

When asked why citation was important Becky said it was to avoid being done for plagiarising, and so that someone could follow up the citation you've given if they were interested in that issue. But that was not something she had ever done herself.

She knew that giving citations was more scientific but found it difficult and '*annoying*'.

Sometimes she struggled to think what to cite when she'd looked at several things to get a '*gist*'. Sometimes she just put down a particular book even if the idea might not have come from there specifically. She found it made writing more time-consuming because *' you have to have the books in front of you all the time ...'* in order to check.

5 Studying on the course

5.1. Organisation/time

Becky finds the workload on the course to be excessive. There is always work to be done and handed in. She finds that there is never time to sort things out or catch up. She likes to enjoy herself and is sometimes tired in lectures because she had been out late. She also has a part-time job. She is aware of how much time she needs to spend on various aspects of the course in terms of hours, for example, that she probably would need to put about 10 hours into the communications presentation. If she had put more time and effort in to the scientific communications module she thought she would have done well.

5.2 Peer roles

Becky discussed course-related topics with some of her friends especially a friend doing psychology. She discusses course work with fellow students and sometimes works with others and this means she gets access to materials such as scientific journal articles which she would not have been able to do on her own.

5.3 Learning

Becky sees subjects or tasks as '*hard*' when she has to put a lot of time or effort into them. She thinks she did not learn very much from the scientific communications module because she only looked at two specific topics whereas in normal subject modules she would learn much more and it would be information that she would need later in the course. Lectures are good for learning if they are interesting and it also helps to have to take notes and re-write them afterwards. If there was a handout she wouldn't bother writing things down and it wasn't so good for learning. Becky does not like learning from reading *'because it's just reading up on stuff that I've already learnt [in lectures].*' Practicals are a good way to make things stick in your mind. Doing essays and especially talks is a good way to learn too. Becky had learnt a lot from listening to the presentations other students gave because they chose interesting topics that you wouldn't get in lectures and:

> *'they're your friends and you want to listen, you don't want to be sat there falling asleep or talking.'*

Bernadette
Course: Environmental Biology

1. General and background issues

1.1 Choice of course & interests

Bernadette started on a chemistry degree but didn't like it. She looked around for another course that would enable her to be more active and she was accepted onto Environmental Biology which she described as '*perfect*'. She is not sure yet what particularly interests her in Biology. She was enjoying an entomology module because the lecturer presented it really well. She had done some field trips and enjoyed those. It is important to Bernadette to study something interesting and she likes to feel that she is doing a subject which could have some impact in the real world. She said:

> *'... sometimes I sit there and think I just, I don't care about this, I mean you really don't care, it's just, whereas other things, I'm doing another module on pollution and I'm really interested in that, atmospheric pollution and things like that and I find it interesting and I found myself listening because I want to listen because I want to learn more rather than because I have to make notes'*

1.2 Career plans

Bernadette sees herself continuing with Biology in some way. She had considered going on to a Masters course and maybe even a PhD. She commented favourably on the careers session in the Communications Module. It had stimulated her into investigating taking a year out on a paid placement to gain experience. She was interested in one at Kew Gardens which she thought would be really exciting as you would be part of '*actual research*' and she would enjoy doing something '*hands on*' after three years at university.

1.3 Nature of subject

Bernadette thinks that Biology is a very fact-based subject and she likes that. It is also very broad and she likes that too as she would hate to concentrate on just one thing for too long. When asked if there were differences of opinion she said, only in some areas, genetics being the main example:

> *'...that's the most controversial thing at the moment because there's still so much to be found out and that's what makes it quite nice in a way as well because there's always something new going on and if you get the New Scientist then there's something new being found out and I don't think we're ever going to learn everything and that's what makes it interesting.'*

2 Plant Physiology Module

2.1 Lectures & learning from lectures

Bernadette did not like the fact that the number of lectures in the module had been reduced because if you have to attend lectures you are '*forced to learn it*'. Trying to fit in reading in your own time, when there are a lot of demands from course work was very difficult. Normally she expects to do extra reading after lectures but if you haven't got the lecture material to start with then: *'if you don't understand things then obviously it's going to take a lot more to work it out'*. Bernadette relates learning from lectures to exams and preferred it when the lecturer told you exactly what you needed to know:

> *'you know exactly what you're being taught, you're given something that you know that you need to know, 'cause obviously everything boils down to the exam at the end of the day, and you know what's going to be in that exam'*

2.2 Recommended and wider reading

Normally Bernadette uses the textbook to follow up after lectures and clarify what she doesn't understand. It is a confidence boost when she starts reading and realises she does know some of it, then: *'you might read another paragraph underneath and it might be a little bit different and then you learn a bit more and you just build it up'*. However she feels it is very different when you have to learn something for the first time by reading. Usually lectures give you an introduction to a topic then you know what areas to look at and fill in your knowledge.

2.3 Practicals
Bernadette said that she enjoyed practicals.

2.4 Exams and revision
Bernadette hates exams and is worried by them. They make you learn by cramming which she does not think is useful. In some first year courses she had been given a sheet which told her exactly what she needed to know for the exam and this helped a lot. But she felt in the Plant Physiology module:

> *'... because there's less lectures we haven't sort of got as much defined ... You've just got to learn everything that you can about it, which in theory is fine, but the workload this year's hard enough as it [is]'*

3 Scientific communications module

3.1 Essay
Bernadette's chose a topic from the list provided, but she asked a PhD student for advice. He suggested a topic related to his PhD topic and gave her a couple of books. She wanted to choose something which hadn't been covered in the course because*: 'I quite like the idea of learning something new on my own.'* She was a little worried about writing a 2,000 word essay because as a science student she had never done such a long essay. She found that it was a lot of work. She made notes as she read through library materials, discarding some papers that did not seem relevant. She ended up with about twenty pages of notes then she decided on her structure and sorted the information into paragraphs. Bernadette found doing this essay really interesting and got absorbed in the process:

> *'I'd be sat in the library from lunch time until eight o'clock without realising it, just because it took so, you sort of get absorbed into it, don't you, and, I want to find more about that, and I want to find more about that, and it just takes over really. It's quite good when it does that'*

3.2 Presentation
The lecturer gave out short articles from New Scientist to form the basis for the talks and Bernadette chose one. She went to the library to do some information searching but found very little and she thinks this is because it is a very new area of research. However she checked with the lecturer and found that she did not need a lot of references. She looked forward to the talk as she had done a lot of public speaking. Afterwards she reported that she didn't find it stressful as she knew everyone there. She received the best mark in the class. She made sure that she really knew what she was talking about, which she thinks some people didn't, and she had a clear conclusion.

4 Information

4.1 Library & information resources
Bernadette thinks that journals are important because they contain the most up to date information whereas books take a while to publish. She had been told that students could be penalised for using material that was too old. Some topics are changing all the time so being up to date is important but she might use older material to show how thinking had changed. If she has an assignment, Bernadette starts with textbooks and the Internet to get a general idea then uses journals or specialised books. She finds the Web useful, especially accessing lecture notes from another university, although students are being discouraged from using it:

> *'because it's a scientific essay, therefore it needs to be fact and anyone can write anything on the Internet, that's the argument'*

4.2 Searching for information
As part of the module Bernadette learnt about databases such as CSA and Web of Science, and how to register for them and found that many journal articles were in the library or could be obtained from other libraries. As a result she feels confident about finding information. However, she still experienced some problems. She was doing an

assignment on bird conservation and it was hard to find information:

> *'... bird conservation, if you type that in then you get thousands and thousands and I've tried narrowing it down because I want to concentrate on, in England, what we're doing in England, and I've put UK and I've put England, and you just get nothing so you've got to just leave it as bird conservation and trawl through them all to find the odd bit that might be relevant which takes time'.*

4.3 Citation & referencing

Part of the scientific communications module was to hand in a reference list for marking. Bernadette felt that you had to be very precise about where you had got information from and citing it exactly. It was important and had to be done correctly so that you didn't lose marks:

> *'.. it's just how it's done isn't it? The same as how you use English and everything like that, you need to get it right, it's easier for them then if they want to check up on you to be able to find that resource and it's fair on the person that's written it that they get the credit for it'*

Lecturers also want to check that you haven't used old or out of date resources.

5 Studying on the course

5.1 Organisation/time

Bernadette feels very pressurised by the amount of work she has to do:

> *'at times it has been very stressful and not being able to sleep at night thinking I have got so much to do tomorrow, and that has got in the way because again you miss the odd lecture because you need to do your work, you need to get your work in on time and once you've done a lecture you don't do the normal, you don't read it through or anything, it just gets chucked in a pile while you concentrate on the other work'*

Although Bernadette likes doing course work, she regulates the amount of time and effort she puts into a particular piece of work according to the marks it carries.

5.2 Peer roles

Bernadette talks amongst friends about things that are difficult to understand on the course. Usually everyone has trouble with the same things and then they might go and ask a lecturer. She ran through her talk with her friends before she actually presented it. Bernadette also made friends with PhD students who helped in practicals and she found that they were helpful and more like fellow students:

> *'... so I might go and see them in their lab or something or if I see them round here ... they're great because obviously I find [lecturers], I don't know, not patronising but Professors are a bit scary, aren't they? - and so it's kind of nice to talk to someone a bit more your own age.'*

5.3 Learning

Bernadette likes to have what she is learning '*clear in my head*'. She chose an essay topic where she would have to learn a new topic for herself, but she liked as much guidance as possible where exams were involved:

> *' ...an essay is something you can do yourself isn't it, you can put it all together and you can't really be marked down for your opinions or anything like that, whereas an exam you need to know the facts - fact, fact, fact.'*

She feels that she can do her best in course work because she can always go back and correct things. In an exam, she does not do her best. She saw the scientific communications module as mainly about learning skills that would be useful for her dissertation, in a postgraduate course and maybe in later life. It was useful to have them brought to your attention like this because you might not think about these things otherwise.

Bethany
Course: Biology

1 General and background issues

1.1 Choice of course and interests

Bethany found biology interesting at school so she applied to do Biology at university. She likes things that she can relate to herself especially human biology but unfortunately there is little human biology in her course. She also likes to learn about something new especially if it is presented interestingly as in her current entomology module. She does not have strong interests in any particular aspect of biology although she tends to enjoy the option modules she chooses rather than the compulsory ones. When she is more interested it helps her to learn because she spends time on that subject in preference to others.

1.2 Career plans

Bethany was still open minded but she did not want to go into research or a job where she had to use her Biology.

1.3 Nature of subject

Bethany described Biology as a subject where there was a lot of work compared to some other degrees. She finds it a little restrictive as a subject because it is very factual:

> *'I think a lot of the things you're told you just have to learn it, that's the way it is, and then any ideas you have to kind of think logically about them. There's no room for imagination ... I like to be able to sort of expand on things and sometimes I think we're a bit restricted.'*

2. Plant Physiology Module

2.1 Lectures and learning from lectures

Bethany tries to go to most of her lectures and makes notes. When she is revising she finds then that she can sometimes visualise the lecture especially if they have done a demonstration or shown a video, and this helps her to learn the material. Professor Cedar's lecturer are more like a discussion with the class and she doesn't like that:

> *'I find it quite vague what he says, and I come from the lecture having the notes that he's given us, but I haven't really been able to expand on them'*

She prefers another module based on OHP slides with points you can write down:

> *'I feel I get a lot out of it and I've got about three A4 sides of notes and I'm like - that's something I can work on and perhaps look and know and understand.'*

2.2 Recommended and wider reading

Most lecturers say that you should do extra reading after lectures but Bethany finds it difficult to make time to do it. She has the book recommended for Professor Cedar's course but hadn't really looked at it. It is better when lecturers tell you which pages to read: *'otherwise you'd have to look through and you didn't really know where you were supposed to look'.*

2.3 Practicals

Last year practicals were written up on the spot and handed in at the end. In this module you had more time so that you could read up on the topic and have more time to think. Bethany had only done reading in relation to one practical because she didn't really understand it. At the time she was not sure if she was reading the right things or getting the point of the practical and in fact she didn't get a very good mark.

2.4 Exams and revision

Visualising the lecture helps Bethany to revise. She uses textbooks to make notes additional to her lecture notes. If she has time she reads through her notes and looks at the book, and for each topic:

> *'I'd be doing like a mind map of it, with pictures and involve colour and all that sort of thing, so I can remember it easier.'*

She often runs out of time so she just writes out 'notes of notes' and reads up in the book.

She doesn't think that the Plant Physiology exam will be too difficult as the subject is not that complicated. There are other modules where the subject is harder to grasp.

3. Scientific Communications Module

3.1 Essay

Bethany only found a few of the topics for the library essay interesting. She got her second choice supervised by Professor Cedar who did help her to think about the topic. She said (without much conviction) that it was '*interesting*' but she would have preferred a different topic. Bethany had a lot of difficulty with how to approach the topic. When thinking about what she needed she tried to keep her title in mind so as not to stray off the point. She found herself '*reading around*' and not always reading what she needed. She took notes from books and when writing her essay she went though everything she had in her notes.

3.2 Presentation

Bethany looked through journals in the library and found a paper on the topic of why we need sleep which was more personally interesting to her than her essay topic. She thought the topic would appeal to people and not be boring. She started by finding a few books on sleep and looked on the Internet, following up some Web references that were in the paper she was using. She wanted to focus on the functions of sleep and that was difficult to find though there was plenty of information on what sleep is, sleep patterns and so on. Bethany was quite daunted by having to do a talk. She felt it did not go well because she didn't put enough in to fill the time or to give the audience a proper understanding of the topic. The feedback said that she went too fast and it was confusing and muddled.

4 Information

4.1 Information resources

Bethany knew that the information on the Internet was not thought to be reliable. However she likes using it because it could save carrying books home and it was quicker to use, more up to date and had more information:

> *'there's a lot more information on the web, so you can get studies from America, whereas you wouldn't do with books, the books are quite, you can only have a certain amount of books in the library whereas the Internet is quite vast.'*

Bethany knew about journals and electronic journals but said that she didn't really use them because it's harder to find the specific information that you want. She thought students were expected to use journals because the information was more accurate and also it was part of training to be a scientist as the course assumed you might go on to a science career.

4.2 Searching for information

Bethany's main concern when starting her library essay was what keywords she could search on. Talking to Professor Cedar helped her to find more: '*words to search on*'. She mostly based her essay on books as she couldn't find any relevant journal articles. Using books also gave her background knowledge. She knew about electronic journals but hadn't used them and felt she needed more guidance on information searching. Bethany saw finding the right keywords as an essential starting point. If the word meant something else you might get a lot of things that you don't want. You have to be neither too general nor too specific. She found it difficult to use a phrase because:

> *'you come up with so much more results from your searches like it might have all the words from your phrase but it might not be altogether, so it's pointless'*

Bethany found one book which was a collection of papers but she didn't use it because she found it too difficult:

> *'I think, it would have been better if I had because it would have been more scientific, more information and I could have got more data with that'*

Bethany had '*less than 10*' references in her library essay and no journal articles. Although she now knew something about her essay topic she thought that it was unlikely that she would need this knowledge again.

4.3 Citation & referencing

When asked why citation had to be done Bethany said that it was to give credit to the people for their ideas and findings and it would enable lecturers to check up if they suspected plagiarism. Citation is detailed to help somebody to find the material more quickly, out of all the mass if information that is available. When researchers cite things it is again so that they don't claim someone else's ideas as their own and so that others can go and find the material.

5 Studying and the course

5.1 Organisation/time

Bethany feels very pressurised on her course. There isn't enough time to do all the work. Going off and finding information and doing work in your own time takes a lot of time. She feels that university is not just about getting a degree and there are other things going on too. She finds it hard to make time to do her studies. After the communications essay, Bethany realised that she should start earlier with tasks like this and be more organised. However although she started early finding books for her talk again she felt she left the preparation too late.

5.2 Peer roles

Bethany has two Biology flatmates and sometimes she talks to them about interesting things she has learnt but she said they are more chatty about Biology than she is. When they do talk about things it helps her to remember them, for the exam. She shares ideas with friends and they discuss if for example they haven't understood something in a lecture. She feels more confident if she knows one of her friends has got the same answer to something. She helped one of her friends by listening to her practice her library talk

5.3 Learning

Bethany feels more confident that she is learning better in a modules that has lectures. In the communications module you had to organise yourself. One of the hardest things about learning at university is that you have to manage your own time and do your own study whereas at school you were spoon-fed. Being at university makes you more mature and independent and outside your course you learn to manage money, to deal with people, and organise your time. She prefers the way the Biology degree requires a lot of attendance whereas some of her friend have a lot more free time. She is not at all sure that the skills she is expected to use in learning including finding information would be useful to her in a job or in later life and she did not expect the Biology she had learned to be useful. However she did then list a number of skills that might be useful in a work situation including: thinking and writing in a logical way; organisational skills, communication.

Brendan
Course: Biology

First Interview Only

1. General and background issues

1.1 Choice of course & interests
Brendan is enthusiastic about most of the subjects covered in his course.

1.2 Career plans
No information

1.3 Nature of subject
No information

2 Plant Physiology Module

2.1 Lectures & learning from lectures
Brendan thinks that a lot of reading is needed in Professor Cedar's module. It is not like some lectures where you come away with all the notes you need. He never re-writes his lecture notes but sometimes adds to them from reading the text book. He feels that he has been more active in this module:

> *' I think you do learn more actually ... combining learning yourself and combining lectures, lecture topics, and lecture structure'*

2.2 Recommended and wider reading
Brendan has been doing a lot more of the recommended reading for Professor Cedar's module than for others this semester. He feels that you probably learn more from a lecture because it is structured for you whereas when you are reading you have to spend time deciding what is relevant.

2.3 Practicals
No information

2.4 Exams and revision
Brendan said that he did not think about exams until it came to revision because it would interfere with learning. Exams are quite biased towards memorising. He is quite organised when it comes to revision, making summary notes to revise from and going over things a number of times.

3 Scientific communications module

3.1 Essay
Brendan chose his own essay topic, partly because this would benefit him in terms of marks:

> *'if somebody was marking it and they think you've just completely taken somebody else's idea, I don't think it stands you in very good stead for their marking the whole essay'*

It also enabled him to look at something he was really interested in within the field of marine biology so that he would have the motivation to do it well. He said that he really enjoyed doing it and found everything he read for the essay '*fascinating*'. He also enjoyed the challenge of learning something completely independently.
Brendan did not really make use of the plan he had to submit for the essay. He prefers to spend time reading everything he has got and getting an overview. Then he can see what is going to go where and write the essay:

> *'I just like to have absolutely everything, think about it for a few days, know exactly where I'm going to put what, structure it properly and then it's just a case of writing it, and that's the easy part really'*

Although he said that writing was the easy part, he spent a long time writing each section making sure that he was happy with the wording. When he does that he *is 'confident that it will*

be OK'. Brendan liked to include illustrations in his essays partly because it would make it more interesting for the lecturer reading it. He finds that it is hard to use you own 'opinions' in a scientific essay but in this essay he did use the first person in his conclusions and this was the first time he had ever done that.

3.2 Presentation
Brendan was nervous about giving a talk but was confident about preparing it. Although he did not look forward to giving a talk, he felt it was a skill that he needed to learn.

4 Information

4.1 Library & information resources
Brendan had used scientific journals from his first year. He saw reading journals as part of doing '*proper*' science rather than just being a student:

> *When you're at University, I mean, it's all right reading out of textbooks, but when you actually read directly from other peoples' primary sources of work you actually feel as if you're learning something directly.'*

Although he used a lot of articles he did not necessarily use all of the details such as statistical results and just extracted the main points that he needed. Brendan didn't like to use Web sites very much as he felt they were not reliable. He used them as a source of illustrations and also to give definitions or a simpler explanation of a term or topic which might not be explained in journal articles because it was assumed that you would know.

4.2 Searching for information
Brendan had been using journals and searching for articles since his first year and felt that he knew more about it than many other Biology students. He cited about 15 articles in his communications essay. He was generally concerned about finding enough relevant information, rather than getting too much, and he was prepared to look through large numbers of the abstracts that his database searches turned up, in order to select relevant material. He said that he expected to find more information than he could actually use in his essay. He did not use ejournals very much, saying that most of what he needed was in the library.

4.3 Citation & referencing
No information

5 Studying on the course

5.1 Organisation/time
Brendan made no comments about time pressures. He said that he needed to start his exam revision earlier than he had done in the previous year.

5.2 Peer roles
No information

5.3 Learning
Brendan thought that lectures were useful for learning but he liked to study things for himself, to read research articles and to pursue topics that interested him. Putting an essay together to communicate what he had learnt was something he found satisfying. In general, he enjoyed learning. He made a distinction between learning for exams and really learning something. He viewed understanding as being able to condense something down to the really important points or having an overview. He had learnt more about searching for information and scientific writing in the communications module which had given him more confidence for later stages in his course.

Brian
Course: Biology

1 General and background issues

1.1 Choice of course and interests

Brian only considered Biology degrees when he applied to university. He is more interested in human biology and has been since school but he had no other strong interests. He finds it helps him to learn when he is interested because he reads more actively and remembers things more easily although it didn't necessarily make any difference at the end of the day to whether he understood the material or not. He takes an interest in matters related to Biology outside his course and he reads relevant newspaper items. He thinks Biology students tend to be more passionate about their subject than say humanities students and are more likely to talk about the subjects they are learning.

1.2 Career plans

Brian planned to go on to an accelerated medical degree after this course. He was however beginning to wonder whether he should continue with Biology, because he was doing well at it. If that continued, he might perhaps go into research.

1.3 Nature of subject

Brian described biology as a wide subject with many different topics and one that's developing all the time. He likes the way that biology can be controversial. He does not see it as black-and-white because there are different interpretations and a lot of things that haven't been found out yet. He explained how views change over time referring to Professor Cedar's lectures:

> *'when he introduces a topic, he'll say, right this is what happens, this is what they thought at first, this is what they thought after that, this is what developed from it. So the different stages they go through of thinking through things and eventually getting an outcome'*

2 Plant Physiology Module

2.1 Lectures & learning from lectures

Brian finds Professor Cedar's lecture handouts quite thorough but he also makes notes in the lectures. He says the lectures are structured in an unusual way, taking an overview across the plant and building up from one aspect to another. Although they do not seem to be learning new things in the module, he thinks that by doing the reading students will realise that there is a lot more to the topics covered.

2.2 Recommended and wider reading

Brian realises that Professor Cedar expects students to do a lot of reading but says he has not been able to keep up because of the amount of course work to do. He has bought the recommended text book but he is concerned that it is rather old (10 years old) and was expensive. Brian is not sure how well he can learn through reading because in the first year there was very little reading to do, basically you just needed lecture notes, but this year it has been made clear that wider reading is needed. Although Professor Cedar does give some guidance about what to read, it is not as explicit as in some other modules:

> *'... at the end of the day a textbook's a textbook and it could be a thousand page long and cover the topic a number of different ways. You need to know the ones to help you pass the exam.'*

2.3 Practicals

Brian thinks that Plant Physiology practicals are different to others, being more like research, so that you have to '*think your way through*'. Other practicals are more about practising techniques or methods, or doing your calculations and just stating the results.

2.4 Exams and revision

Brian goes through the textbooks marking up the sections he has to read, based on the guidance in the lecture handouts, and reading the sections. Then when it comes to the main revision period he'll go through them all again and make notes. He also likes to draw things out when he's revising as he likes a visual representation. He assumes that because wider reading is needed, the exams this year will be different to what they were in the first year.
By the second interview Brian was still wondering what the exam would be like although he had looked at past papers. He said:

> *'they form a structure that's coherent with the module, you have to have a wide area of knowledge, it's not necessarily as deep as the other modules.'*

Professor Cedar had offered a revision session and Brian planned to take up that opportunity even though few students seemed to want to do so.

3 Scientific communications module

3.1 Essay

Brian chose his own topic, looking for something that was current and controversial:

> *'[lecturers] like the current topics, they'll look good because they're in the news, nobody knows a lot about them so they won't be bored reading it and the other bit being that they might not know too much about it, so they might not mark you down that much. That sounds ridiculous, but if you do something a lecturer knows inside out then they'll say, no that's not right, you know.'*

He made a plan for the essay on the basis of one article he'd read and he found that really helpful in guiding his literature search. He likes to start writing on the basis of some initial ideas and reading, and then develop it as he goes along. Close to completing his essay he used the Web to get some basic explanations of some concepts that he didn't really understand, but which needed to be included. Brian saw his essay supervisor on a number of occasions and obtained feedback from him on a draft essay. Although he did not agree with all of the comments he amended his essay because he knew the supervisor would be marking it and the comments helped him to develop a strong conclusions for the essay.

3.2 Presentation

Brian was used to giving talks as he had done a number on his A level course. He chose another very current topic and was able to base his talk on recently published articles in Nature. He also use a Web site but extensive reading was not required so he was able to spend more time understanding the topic:

> *'I didn't form a reference list for the talk, I saw no need to, I wasn't going to lose any marks or anything. ... It gave me more chance to look at references rather than just carry on writing them down.'*

4 Information

4.1 Library & information resources

Brian thinks that journal articles were the best resource to use in his course:

> *'because it goes from a starting point where they don't know anything until they've actually found it out and it's a learning curve for whoever's written it'.'*

He appreciates textbooks with good diagrams and visual elements because that helps him to learn. The Web is also useful for illustrations and sometimes even animations and simulations. For an assignment he would look for journal articles rather than books and might use the Web to look up any concepts that he didn't understand, after having read the scientific journals. Web sites often put things in simpler terms.

4.2 Searching for information

Brian is confident about any information searching he needs to do after his experience with the scientific communications module. His final essay had 31 references, mostly from journals but he tried to get variety by including New Scientist, a popular journal, and books.
His essay supervisor showed him how he would do a search and in the first year they had been shown how to search for journals. He found that most of the journal articles that came up when he searched were ejournals. He was doing information searching now for a number of modules and sometimes found it difficult depending on the topic.

4.3 Citation & referencing

Brian had not originally done his citations correctly in his communications essay but his supervisor had alerted him to this when he read the draft. After this Brian said it was not difficult to do and with some of the electronic materials you can copy and paste the correct citation into your assignment . When asked why citations were needed he said that it was to avoid plagiarism and that the same was true for scientists publishing in journals but for them: *'also in a more minor sense [so] whoever's written it gets the correct credit they should be getting'.*

5 Studying on the course

5.1 Organisation/time

Brian feels frustrated that he's not able to do everything he wants to, such as reading up after lectures, because of pressures of course work. He is well organised and has systems such as making lists of things to do in priority order. He is concerned not to spend more time than he needs to in order to do a good job when he has an assignment. Brian he has no time at weekends for study because he has a part-time job. He says that he doesn't mind working hard on his course but many other students don't want to work. Biology students have a high workload compared to many other students and this limits what you can do outside your course such as on the social side.

5.2 Peer roles

Brian tried to get one of his friends on the course to read over his essay before he handed it in but none had time. In the end his sister read it over for him. He found it useful to see other students' presentations in the weeks before he did his library talk as it gave him ideas about how to do a good talk.

5.3 Learning

Brian is very focussed on marks. When asked about whether the Plant Physiology module was better or worse than others he said:

> *'I can't say whether it's better or worse until I see the results really, as far as I'm concerned, because to me that's all that matters. I've enjoyed it up to this point, but as long as I get a good result, I wouldn't be bothered…'*

Brian felt that the skills he'd learnt from the communications essay such as information searching would be very helpful in the rest of his course when bigger projects would be required. He also felt that it would help if he '*got a first*' and became a researcher writing papers himself. He also felt a sense of satisfaction in having produced an essay on a topic that he knew nothing about when he started. When asked if he felt it was important to learn in this way he said:

> *'Well eventually if you get where they're trying to get you, one day there's going to be no one to teach you, so yes.'*

Brian saw the degree course as trying to develop you into an academic biologist/researcher and he had not expected that:

> *'the entire degree seems aimed at getting you to do their [lecturers'] jobs, which is a novel way of doing things because a lot of degrees just assume that you're going to get a certain amount of knowledge …'*

Bridget
Course: Biology

1. General and background issues

1.1 Choice of course & interests

Bridget has an active interest in Biology which started at school. She wouldn't have wanted to do any other degree. She is fascinated by how things work and this is what she finds interesting in Biology but she hasn't got a deep interest in any particular aspects. She likes being able to explain to other people:

> *"I love it when people are watching a programme and they're [saying] - oh I wonder why that's like that? And I can tell them and I know the answer, it's nice to just know, I love knowing more information, it's good to know that you can tell people stuff."*

1.2 Career plans

Bridget is considering teaching where she could use her subject knowledge. She was still thinking about a more general graduate job, in business perhaps, and in that case she felt general skills would be more relevant. She said that the course this semester, especially the scientific communications module, has helped with that:

> *"it's made me more confident that I can go into a room and go into a job and maybe I can manage myself and I know I can maybe take on quite a challenging job, I think they've helped me to get to that point."*

1.3 Nature of subject

Bridget sees Biology as helping to explain how things work:

> *"I don't look at something at face value, I want to know how it works, how it gets there and why it's like that".*

When asked if Biology was a very factual or black-and-white subject Bridget said:

> *"I think sometimes it is black and white and it's – 'this is how it works' and then, one day the lecturer could be saying, 'yeah this is how it works' and then the next day … 'oh well they're not too sure now because they've found this'".*

This suggests that Bridget saw biological knowledge as changing and developing.

2 Plant Physiology module

2.1 Lectures & learning from lectures

Bridget always writes up her lecture notes and in Professor Cedar's module she is trying to add to those notes from the recommended reading. In some other lecture courses it is very directed and you are told exactly what you need to know from the lectures and specified reading. She recognised that doing more for yourself in the way of outside reading was important but she would have appreciated more help and more structure.

2.2 Recommended and wider reading

Bridget has been trying to do the reading recommended by Professor Cedar but she feels that there is not enough structure or guidance on how much to do so she could find in the exam that she hasn't been reading the right things. She tries to write notes but sometimes there's a lot to read and she doesn't know what to note:

> *" … trying to work out for yourself what is important is hard when you don't really know enough to begin with."*

She commented that when Professor Cedar refers back to something from earlier in the module she can remember it better than usual because she has been doing the reading and working on her notes. In many modules she would leave the reading to the end, when revising. By the time of the second interview in December, Bridget had fallen behind with her aim to do the reading because of time spent on course work. She thought that it was good to be expected to do reading for yourself but hard:

> *"I think it's good for us but it doesn't make it any easier or nicer to do".*

2.3 Practicals

Bridget liked practicals because it enabled you to have some interaction with lecturers and ask questions, rather than a lecturer just being someone who talks at you in a lecture room.

2.4 Exams and revision

Bridget finds that writing up lecture notes, doing reading and adding to notes helps when you come to revision because it helps you to remember the material. She felt anxious about the Plant Physiology exam because she was not sure what was expected. In another module the lecturer says that if you learn everything on the handouts he gives, you'll get a good mark and if he gives reading it is very specific. This is not the case with Professor Cedar. She felt that there was so much to read that *"she couldn't physically learn it"*. She said:

> *" I don't really know ... what he's going to expect [from] us, if he's going to expect us to read everything, know everything off by heart, and really learn it, or if he just expects us to know in more general terms and then just a little bit more background".*

3 Scientific communications module

3.1 Essay

Bridget chose her own topic, something she had come across in her course before and found interesting. She said that lecturers preferred it if you chose your own topic. She was reassured after talking to her essay supervisor that it was a controversial area which she felt was suited to the essay and also meant that there would be a lot of information available. After reading two or three articles, Bridget wrote a plan for her essay. When asked is if she found anything confusing or contradictory in the articles she read, she said that sometimes articles which were ten or more years old did not agree with more up to date ones but she would accept what was in the more recent articles. Otherwise she just thought about what sounded most '*feasible*': *"just basing it on what I know and how I can make an informed decision".* She did not put in her essay anything that she couldn't understand:

> *"I didn't think it was right to put stuff in that I didn't really understand and couldn't really put in the right context".*

She thought her essay was '*OK*' but that she hadn't really written enough and should have gone into more depth on some things.

3.2 Presentation

Bridget chose mating behaviour in a particular bird for her talk. She skimmed through an animal behaviour text book and the picture of the bird attracted her first. Bridget felt unsure of what was required for the talk and had little experience of giving presentations She felt there was more pressure when doing a presentation; *"standing up and presenting your own work is a lot harder I think because if it's wrong it's all down to you that it's wrong".* She was concerned about whether she would interpret the articles correctly and whether she would do the talk the way the lecturers wanted. She compared the two articles which contradicted each other and said why she thought that might be, for example, it could have been due to their experimental methods: *"Just really what I thought was the most likely and what I thought was the best".* However other students had not concentrated on scientific articles and had talked about something they had experienced personally and were interested in. Bridget got 63% for her talk, and thought she might have done better if she'd taken that approach too.

4 Information Use

4.1 Information resources

Bridget found that scientific articles were often hard to read and she had never read one before this year. Sometimes she would be reading and understanding and then suddenly it went off into something she did not understand. Also terms that she wasn't familiar with would be used. She thinks that journals and the Internet are the most important information resources in Biology because they are more up to date. She is reluctant to use a book for essays which is perhaps four or five years old, because it could be out of date. She sees books as being used when recommended by a lecturer to support a lecture course rather than for assignments. She might also use them to get a basic understanding of a topic then go on to journals.

4.2 Searching for information

Bridget's supervisor for the scientific communications essay gave her one report and she followed up references from that and then searched in the library databases. At first she was getting thousands of hits and she asked the librarians for help. When she put in *'a more specific title'* she got what she wanted. She found narrowing down her search the most difficult thing as you can come up with thousands of results. Once she has a reasonable number she finds that she can tell what is relevant by looking through the abstracts. Sometimes if it is an ejournal she'll go to the article but usually looking at the abstract is enough to decide whether it's relevant. For her essay she found nine or ten abstracts and looked through them all. She discounted some because they were too complicated and she did not think she would have time to understand them:

> *'I just went for the ones that seemed easier to understand and gave me everything in one that I needed'.*

Bridget also used textbooks and the Web, using a search engine, to give her the basics and help her understand what was going on. Although the guidelines said that students should not use the Internet, Bridget felt that she needed it:

> *'I had to get the basic stuff first, so that's why I did that [searched the Web] first, because otherwise I just would have been too lost'.*

She knew that you couldn't rely on Web information. She would be more likely to use sites that came from a university and had a name on. The Web is good for pictures that you can use in an essay. For her presentation she found a lecture that someone had given on the topic which was very helpful

4.3 Citation & referencing

Bridget thought that citation was important so that lecturers could see that you were not copying material. You have to put the reference in the right place so they can see where you're using it. Lecturers can also check whether you are using enough references and the right kind of material. When asked why researchers used citations in their articles she said that it was so they did not pass off other people's work as their own and to *'give credit where credit's due'.*

5 Studying on the course

5.1 Organisation/time

Unlike some interviewees, Bridget made very little reference to lack of time or pressures of work. She said that being on the course taught you to manage your time and organise yourself and that the lecturers did what they could to help you.

5.2 Peer roles

Bridget had no comment to make on the role of fellow students, even when asked directly.

5.3 Learning

Bridget felt that she learnt more about 'skills' than about the topic in her scientific communications essay:

> *'it's more beneficial to me being able to understand these articles and knowing where to go and where to look for them and how to plan and get a project on paper ... I don't think not knowing huge amounts about coral bleaching is going to affect me'.*

She thought that this would be very useful for her dissertation next year and had already used it in other essays. Bridget said that students on her course are encouraged to develop their own ideas, think for themselves and not just regurgitate what they're told. Professor Cedar says:

> *'it's fine to put it in, as long as you can say where you got it from, why you'd come to that conclusion'.*

Bridget does not often have her own ideas and tends to do what she is told although she now feels that she could do something like criticising the way an experiment has been done. Her view seemed to relate to her feelings of confidence:

> *'I think if I did have an idea ... I don't think I'd be that confident in putting it in because I know, the way I see it is, the people that I'm learning from obviously know more than I do and I think I might look a bit stupid if I wrote the wrong thing. I think I'd have to be pretty sure about it and maybe know a bit more what I was talking about.'*

Briony
Course: Environmental Biology

1. General and background issues

1.1 Choice of course & interests

Briony had '*always*' liked Biology because of the way it explained how things worked and she also had a long-standing interest in environmental issues and feels that environmental biology is an important subject. She finds that there are a lot of things in the news that she can understand better because of her course. Briony has not get any particular interests within her course and finds most modules interesting.

1.2 Career plans

Briony would like to work in conservation work or field research. She definitely wants to continue with biology. She found the communications module helpful in thinking about careers.

1.3 Nature of subject

Briony thinks that Biology is constantly changing as more things are found out through research. It should not be thought of as a very fixed subject because what students are taught changes all the time.

2 Plant Physiology Module

2.1 Lectures & learning from lectures

Briony finds that the handouts and Professor Cedar's lectures explain things really well and she does not think you need to do much more reading beyond that and only *'if you want to go into more depth'*. She doesn't take notes in his lectures because there are handouts. She finds the lectures interesting partly because Professor Cedar is so enthusiastic. She is pleased that there are fewer lectures because she finds some lecturers drag things out which is boring whereas *'there's no point in just sitting there as long as you've got all the information you need'*

2.2 Recommended and wider reading

Normally Briony only does reading in preparation for the exams and relies on the recommended textbooks.

2.3 Practicals

Briony said that sometimes practicals were long and boring. What she liked about them was that you could work with other students which she found helpful:

> *'you get to talk about the subject itself while you're there. You think of different questions and you can ask each other without having to ask the lecturer'*.

It was also an opportunity for you to speak to lecturers and they might get to know you which is impossible in a large lecture.

2.4 Exams and revision

Briony said that she did not think about exams until just beforehand. She felt that it was really important to have a good set of lecture notes for revision and that handouts were very helpful. She preferred course work to exams.

3 Scientific communications module

3.1 Essay

Briony's essay topic was something which had been addressed quite a lot on her course so it was not too difficult. She had problems with finding information even though the course provided in the library had helped her. She was having trouble narrowing down her essay as there was so much that she could include and this was a recurrent problem for her:

> *'I do have a problem when I write essays that I don't tend to stick to the actual question or the title of the paper, I tend to go off on one, you know, bring in information about other things that I'm not supposed to'*

She worried about putting information into '*the correct order*' and tried to use a very general structure of three sections: introduction, the middle part ('*the science things*') and a conclusion.

3.2 Presentation

Briony was worried about her talk because she felt she was not a great speaker and she was also concerned that she would get the information wrong. In fact, even though she was very nervous her talk went better than she expected and she was pleased with her mark. She felt that she learnt the topic better by giving a talk than she would have done with an essay:

> *'I found it was a lot easier to understand and, especially when you're telling other people, you've got to put it in a way so other people can ... understand, and I found it was, I actually really enjoyed doing the talk rather than the essay, I found it a lot easier to understand and I found it a lot more interesting as well'*

4 Information

4.1 Library & information resources

Briony thinks that she needs to use journals on her course because they are scientifically correct. It is also easier to find specific information in a journal article for an assignment. She finds the Web useful for background or definitions but knows that lecturers don't want students to use it because you don't know who has written things. She also said that via the Internet you could get in touch with researchers directly and she knew of other students who had done that. Textbooks might also be useful for background information.

4.2 Searching for information

Before she did the course in the library Briony only used books and the Web. She had never used journals and did not really know what they were. Now she knew about databases such as CSA and had used them. She had some problems. She found it difficult to choose search terms and tended to put in her essay title. Although she found relevant references, she then had difficulties finding the articles in the library and only realised after she handed in her communications essay that there were electronic journals. This meant that she only referenced two journal article in her essay.

4.3 Citation & referencing

When asked about why citing your references was important Briony said that it was so that lecturers could see that you hadn't plagiarised. In scientific articles it was necessary because scientists would be building on the work of others and had to say where that had come from. It would also enable others to follow up on that work by looking up the reference.

5 Studying on the course

5.1 Organisation/time

Briony did not make many comments about time pressures although she liked it when modules did not '*pile on the work*'. She said that it was important for students to learn to manage their own time and that she preferred to be able to manage things herself and go at her own pace.

5.2 Peer roles

Briony liked working with other students in practicals and mentioned that one of her fellow students helped her with information searching. In the communications module she had got to know her classmates better and said that this was good because you could help each other out. She did not seem to talk about her subject with friends outside the course in fact she said some of them laugh at her and call her a '*greenie*'!

5.3 Learning

Briony found that lectures were a good way to learn because you were given all the information you needed. She liked smaller classes in practicals or seminars because then the lecturer had more time to answer questions and could get to know students as individuals. They were then more willing to help you if you had a problem and you found it easier to talk to them. She preferred course work to exams because you could do things at your own pace when you were preparing an essay. The skills learnt in the communications module such as finding information and giving presentations will be very useful in the rest of her course. They will make things like doing a dissertation quicker and easier.

Appendix 26: Social Science: student summaries

Sadiyya
Salim
Sean
Selena
Shahira
Sophie
Stuart

Sadiyya
Course: BA Hons Language Studies with Area Studies

1. General and background issues

1.1 Choice of course & interests

Sadiyya did one year of a degree course in a different, more vocational subject at a different university. Although she passed that year she was not happy with the subject feeling that it would lead her into a very competitive area of work. She contacted the department at Arden and explained her interest in Area Studies and especially language studies and was able to transfer. Her first year was not too difficult for her as she was not an absolute beginner in the language. She had enjoyed the course but would have liked to spend more time on the language side.

1.2 Career plans

Sadiyya was very uncertain of her career plans. Until now she had progressed through education always seeing studying as her *'main thing'*. Now she definitely did not want to continue studying or not for the time being as she had been quite drained and exhausted by her final year. She felt that she needed some time off after her degree to *'vegetate'* before she thought about what to do next.

2 Degree course in general

2.1 Learning in general

Sadiyya feels that the main learning on the course is through assignments. You don't learn from lectures unless you put them into use by doing an essay. She finds reading more helpful than lectures. In terms of personal learning Sadiyya said that doing the degree had put things into perspective for her and she felt *'more at one with myself'*. She felt she had become more confident especially about speaking up in a group.

2.2 Organisation/time

Sadiyya is very concerned about her workload and says that it takes her a long time to produce work she is happy with. She has problems if she has too many deadlines at once. Particularly after her dissertation she felt burnt out and it was difficult to summon up the energy for her academic work.

2.3 Peer roles

Sadiyya was able to ask for and offer help to fellow students e.g. help in finding things in the library, exchanging lecture notes. She commuted in from home whereas most other students lived close to the university which limited her social contacts to some extent.

2.4 Recommended and wider reading

Whilst Sadiyya is working on her dissertation she has not found very much time for reading beyond what is needed for essays. In most modules it is very useful to have one or more of the set texts.

2.5 Essays and assignments

Sadiyya does not write very many essays as her main subject is the language with area studies as subsidiary. The module set texts are useful as a starting point for essays. She tends to gradually accumulate books and articles over a period of time once she knows the title she is going to do. She likes to have a lot of books and materials gathered together for an essay, take notes of relevant parts and then make a plan and start writing. She finds it is a *'huge task'* but always tries to produce the best work that she can.
Sadiyya uses a basic structure of introduction, main body and conclusion. She tries to cover the theory first and then apply it to examples. Until she gets her essay back she can't say whether she has done it *'right'*. She is often unsure what the lecturer wants but she does not feel happy handing an essay in unless she feels she has understood the topic. Some essay titles are *'baffling'* or vague often asking you to *'discuss'*. It depends on the title whether she presents both sides of an argument. Usually her conclusion is very brief because in academic essays very often your *'opinion'* is not wanted.

2.6 Exams and revision

Sadiyya revises by reading through her lecture notes or other notes she has made from reading and then rewriting them, looking up gaps and '*making more notes*'. She is quite good at revising and during revision she learns a lot although it could be called cramming. In exams it is '*just a case of showing what you know*'. She thought that the AAS exam might be more difficult because there were only two questions to do compared to the usual three: ' *it's really going to show ... how much you know I think*'

3 Dissertation

Sadiyya wanted to do something related to gender issues in a particular country but she talked to a number of people and realised that Western feminist approaches would not be well-accepted there. She decided to do a study relating to health with a main focus on women but one that would be more acceptable in terms of approach and also might be of some local benefit. Her discussions also made her determined not to go in with assumptions about what she would find. Part of her research involved a questionnaire survey. She also used a lot of academic materials alongside her own data. She tried to cover different perspectives in her dissertation for example what the official government statements say and what other people say in order to reduce bias. Her supervisor gave some feedback on draft writing but was not available very often.

Although Sadiyya felt she developed a lot of interesting ideas by doing her dissertation she was disappointed with the conclusion she wrote. She felt that was partly because she had a lot of problems at the final writing up and formatting stage (mainly computer problems) and just became too fraught and exhausted to do a good job at the end. She was not sure how well she would do especially as the two markers might want to see different things:

> *'I've attempted to satisfy all the things that were asked of me but how well I've managed to do that I think is a matter of opinion. I really couldn't say*'.

However the dissertation was still:

> *'an eye-opener for me ... [with] certain things I have been through in my lifetime that at the time didn't seem to make sense ... I was just looking at health but even with that I found I could look at things slightly differently*'.

After doing her dissertation Sadiyya said she felt much more confident about researching and presenting something for herself and following her own ideas.

4 Anthropology & Area Studies module

4.1 Choice of module/interests

Sadiyya chose the AAS module because she thought that it would be interesting but she also thought about the workload and felt that this module would not give her '*too much stress*'.

4.2 General comments

Sadiyya liked the way that the module was well-organised with material on WebCT, including recommended reading and Web links, and handouts every week. Because you could make contributions in class in an '*informal*' way she did not feel that there was too much preparation to do for seminars. However although she was impressed when she was shown the WebCT site she did not use it very much and had difficulties trying to use it more when she came to revision. She said she just didn't get on very well with computers.

4.3 Essays

Sadiyya did a lot of work on one title for the formative essay then gave up and changed to another one. When asked to explain why she said she didn't like the topic. She didn't '*dare*' say that she didn't understand it because she had done a lot of reading but later on admitted that not understanding was the problem. It seems that she had realised that she might find the title challenging because she described it as a '*daring*' choice. The alternative title was easier because she already had some relevant material that she was using for her dissertation and she was able to rely a lot on the module set text.

Sadiyya did her summative essay after her dissertation which she said made quite a difference. She chose the topic on migration because it related to her personal experience. She didn't use the reading list at all and had her own ideas about what lines she should follow and was able to

come up with some interesting conclusions. Although she ended up with quite a long bibliography at first she only had a few books and built up from there. She collected some primary data using a questionnaire. Sadiyya found this essay personally very interesting but said: '*maybe I was cheeky in that I saw this as personal'.* She said she found it easy to link experience with the theories she came across in this essay.

5 Information

5.1 Library & information resources

Sadiyya relies a lot on reading lists. She feels that a lot of material is organised for students then it is up to them to use it. She has heard other students say that journals are good to use because it is easier to find a specific thing rather than wading through a book, although even with a book she would only read the relevant parts. You may get recognition from lecturers for hunting out things for yourself but some lecturers have also warned that you have to be careful what you use as some material could be unreliable. Lecturers are increasingly recommending students to use the Web but they don't always give links to specific sites as Dr Elder does. She thinks it's something of a trend with them or they feel they have to do it to be modern. If it was entirely up to her she would not use the Web.

5.2 Searching for information

Sadiyya does not remember having any instruction on using the library. She tries to go to the library with a friend who can help her because she knows more and is better with computers. When she has been stuck she has asked library staff and has found them helpful. One of her main problems is finding the recommended books in the library because usually they are all out. Sadiyya finds it very difficult and time-consuming to search for information on the Web. She is not very computer literate and can spend hours finding nothing.

5.3 Citation & referencing

Sadiyya often wonders how many references are really needed in essays. In her second year she realised that : '*everything you say has to be backed up by a reference'* so now she tended to have a lot of references, up to forty (footnoted citations) in an essay. She is still unsure about setting out a bibliography and how to write the references because different lecturers seem to want different things. There is a booklet explaining how to do it for the dissertation but Sadiyya said it is so detailed '*it can drive you round the bend'*.

Salim
Course: BA Hons Area Studies with Language Studies

1. General and background issues

1.1 Choice of course & interests

Salim was keen to do Sports Studies as a degree but though that the career prospects would not be good. He was interested in social science subjects. When he found out about the Area Studies degree he thought it would be something different and interesting. He has a connection to the region through his mother. He came for an interview and really liked the place.

1.2 Career plans

Salim is considering doing an MA if he can stay on at the University of Arden. Otherwise he plans to take any job to pay off his debts and to do some travelling. When he looks for a real job he does not expect to do anything connected to his degree subjects.

2 Degree course in general

2.1 Learning in general

Salim thinks that you need lectures to give you the background but essays are useful because they are specific and that is the kind of thing you need for exams. His course covers too many things and in particular he would have preferred not to do language studies although he says it '*looks better*' if you have got a language when you apply for jobs. On the whole he does not feel that he has gained anything specific from the subjects he has studied. It is the experience of having done a degree, any degree, that is important. He does not think that many people have an interest in the subjects they've studied once they've got their degree.

2.2 Organisation/time

Salim acknowledges that he is a bit lazy. He doesn't always put enough effort into essays because he is doing other things outside his course but when he does do it properly it feels much better.

2.3 Peer roles

Salim finds it useful to borrow notes from other students. They all swap essays to help with exam revision.

2.4 Recommended and wider reading

Salim tends not to do any wider reading until it comes to reading up just before exams.

2.5 Essays and assignments

Salim's approach to essays is to get a few books. He highlights sections or makes notes and sometimes some of them are not relevant when it comes to writing the essay. He does not make a plan but just writes the essay. By this stage of the course you should be able to do that and once you've written your introduction;' *you should be able to know where your essay's going'*. Salim does not think he is as good a writer as some of his fellow students so no matter how long he spent on writing his essays he would not do as well as them.
When asked what he did if he found differing views in his reading, Salim said that he usually didn't but that you should '*write both'*. He then said that probably you should come down on one side but he wasn't too sure how the marker would regard that because you could be '*contradicting'* yourself. However he described an essay as having three sections: introduction, your argument and a conclusion. He did not feel that you could be wrong in a Social Science essay:

> '*as long as you've put a good argument out … it's not something scrawled out which is not really backed up by anything*'

He cannot see the reason why summative essays are 4,000 words. He thinks this is too long, he struggles to get there and it take up too much time.

2.6 Exams and revision

Salim manly uses essays and lecture notes for revision. He has looked at past papers and thinks that the exam in AAS will be more factual: '*you've just got to know a few facts and be able to write it down well*'.

2. Dissertation

Salim did not think too much about his dissertation topic. He quickly chose something which was not too hard and fairly interesting plus he knew that there was a lot of material on it in the library. His supervisor helped him quite a lot with draft work because, when he saw the first piece, he said Salim's writing was '*atrocious*'. Salim found the topic interesting but had a problem because so much was written on it and most of the books just say the same thing with slight differences. It takes a lot of time to read and find some of those slightly new things. In his bibliography he had nearly 30 books. He was also able to get some books from the country he was studying when he visited there so he hoped that would meet the requirement of using primary sources. His supervisor helped him to revise his initial research question and explained that he had to do more analysis rather than just reporting the facts and that he had to use his own ideas. He was still unsure of how his dissertation would be assessed and thought that assessment criteria that they had been given were not helpful. He expected that '*precise writing*' and good layout would be important.

4 Anthropology & Area Studies module

4.1 Choice of module/interests

Salim chose the module because all his friends on the course were doing it and that would make it much easier for him, especially for exams when they would share revision notes or essays they had written. He finds the subject boring as it deals with things he doesn't care about.

4.2 General comments

Salim wondered if lectures in the module were a waste of time because he could just use the notes on WebCT but he thought that by attending you might pick up something else that was not in the notes. He uses WebCT to get notes when he has missed the lecture. He thinks that you could probably 'get away with' just using WebCT for revision using the notes and the Web links.

4.3 Essays

Salim used a few books from the library for his formative essay but it was difficult to find an example of particular ethnic group. He chose the one which seemed to be covered most in one of the books. When it came to the summative essay he chose what seemed to be the easiest title. He also assumed that because the title did not specifically say something like '*compare and contrast*' it would be fairly descriptive and factual.

5 Information

5.1 Library & information resources

Salim's main resources are books from the library which are on reading lists. He says it is '*funny*' that some lecturers want you to use journals and if they require it he will use journals. He doesn't really see the point when you could '*just find another book*'. He does not think there are many ejournals relevant to his course. He does not use the Web except as a last resort.

5.2 Searching for information

Salim does not remember having any introduction to the library. In his first term he got help from another student and now can find books without difficulty. He still has problems finding journals. He finds trying to use the Web far too time-consuming unless you are given a specific reference.

5.3 Citation & referencing

Lecturers prefer it if you use several books for an essay not just one or two. A good bibliography demonstrates the '*you have done some work*' and they tend to give you a better mark.

Sean
Course: BA Combined Honours (Area Studies, Language Studies, Anthropology)

1. General and background issues

1.1 Choice of course & interests

Sean chose the course because he had strong family connections in the region and had lived and travelled there himself. His cousin was already doing the Area Studies degree at Arden. He likes the mix of language and social sciences but had become particularly interested in Anthropology and considered changing his degree course at one stage but it proved not to be possible. He likes modules which really make him think, where there are '*big ideas*'.

1.2 Career plans

Sean planned to work with asylum seekers after he left university. He was looking forward to moving on because he felt '*set apart*' by being a student. He had no long term career plans and although he had several ideas about what he might do in the next few years, it depended on how things worked out. He had no really definite plans.

2 Degree course in general

2.1 Learning in general

Sean said that most of his learning was through writing essays: '*that's when I have to do the reading and that's when I have to look at the issues.*'. He said that the course had helped him to understand issues relevant to his life, ideas that he found useful: *'it's only one way of looking at things but it's one ... that I probably wouldn't have thought before'* . He also thought that it was '*amazing*' that you had a huge library and time to use it so you could gain access to lots of ideas.

2.2 Organisation/time

No information

2.3 Peer roles

Sean has learnt a lot by talking to other students about what they were learning so he has gained ideas from other peoples' subjects too. He thinks you learn as much from other people at university as you do from the modules you take.

2.4 Recommended and wider reading

Sean was doing very little reading in his final year that was not associated with either essays or his dissertation. This was due to pressures of time.

2.5 Essays and assignments

Sean likes to read widely for essays although he starts with recommended readings. He felt reading a lot was a kind of '*security*' and that the more you read the better you would understand the topic. He also liked to use quotations a lot, perhaps more than he ought to. He liked to make his work '*inclusive*' of the work of other people. Sean expected to find different views in what he read and welcomed that, but he found it difficult to encapsulate different views in an essay. He was inclined to present a lot of different views and then perhaps assess their merit and he did not always feel he wanted to come down on one side. However he feels he has to narrow down or use '*a sustained argument throughout*' thereby excluding other perspectives. When he does that, he still tries to write what he considers to be right rather than just putting together an argument for the sake of the essay: *'it's what seems to be a good analysis of it so ... I see it as being right'*

He usually makes a plan just before he starts writing but still changes it quite a bit. He likes to be able to see the whole picture in his head but it does change as he writes and he is quite slow at producing essays.

Sean always felt that he understood the material when he wrote his essay but was not sure if it was good: '*that's for the lecturers*'. He gained an understanding through a process of '*sifting*' and '*fighting with*' the ideas. His own understanding was more important to him than the mark he got. Writing literature essays (in his language studies) was easier because you were

analysing texts; in social science modules: *'you have the whole of reality to try and put down in 2,000 words'.*

2.6 Exams and revision

Sean usually revises from course handouts and notes he has taken then does more reading to get a bigger picture. He also uses essays he has written in his revision. He said that you can usually guess what issues will come up as it is fairly obvious from past papers. He does not think he is very good at exams and does not think they are a very fair assessment. He doesn't like having to address questions at such a speed, writing an answer in 40 minutes when during the course he would spend a week on it:

> *'I still need a lot of internal organisation before I can put anything down, so normally probably I'll be very slow and not complete the questions properly'*

3 Dissertation

Sean thought of several topics before he settled on one. He tried to find something that fitted his own interests but realised that some of his ideas would not be suitable or perhaps not feasible. He finally chose to study a group of people with disabilities within a particular community. He started very openly both in terms of his fieldwork and in terms of his reading. Much of what he read was not relevant in the end but it helped him to decide what he wanted to focus on. He still found he had to learn about new areas of research and theory that he hadn't covered on his course. The work made him question some of his own ideas and opinions.
Sean really enjoyed doing his dissertation. He enjoyed the fieldwork and even the writing although he found himself under huge pressure at the end to complete on time. It seemed very different from anything else on his course because it was *'totally my own work'.* He said: *'I really wanted it to go well and needed to do well'.*
Sean had to pursue every source he could track down for his dissertation because it was a very specific situation with not much written. He was able to obtain some relevant materials to use as primary resources in the country where he did his fieldwork. However, on the academic side, he was using methods of analysis and theory quite widely so he had a long bibliography. His conclusion was based on using a particular theoretical perspective but he also made practical suggestions about how the community could be helped to develop.
Sean only saw his dissertation supervisor once but that was his own choice; he made no attempt to see her. However when he submitted it, she asked him to present his work as a paper at a research symposium.

4 Anthropology & Area Studies module

4.1 Choice of module/interests

Sean chose this module because he was particularly keen to continue with Anthropology in his combined programme. His dissertation research was within Anthropology in the region covered by the module.

4.2 General comments

Sean thought that the module consolidated Anthropological ideas and knowledge which he had addressed in earlier modules and applied them in a regional context. He did little background reading in preparation for classes because he did not have time and in this module he could draw on his extensive experience in the region and his prior study of Anthropology. He especially appreciated the way Dr Elder encouraged links between academic knowledge and personal experience in this module. In some other modules there could appear to be: *'two opposed sets of knowledge, one set of personal experiences and one of academic knowledge which doesn't really bear much resemblance'.*

4.3 Essays

Sean used the Web more for his essays in this module because of Dr Elder's use of WebCT and the links provided. He chose a topic concerning migrants for his summative essay because he could use it to explore something personally relevant; he planned to work with asylum seekers after leaving university. He also drew on some relevant experience and he checked with Dr Elder that this could count as 'fieldwork' and be included in the essay. She encouraged

him to make what he wanted of the essay and it reinforced the view he was developing that he didn't want to:

> *'just write stuff that people have already written because ... it seems a bit pointless, so I feel you've got to have something quite original in there for it to be worthwhile writing anything'.*

5 Information

5.1 Library & information resources

Sean used books and other materials on reading lists as a starting point for essays. He was just starting to appreciate the potential of the Web through his use of it on the AAS module. One of his main problems in the library was that recommended books were often out. Sean found himself with very little time to write one of his essays and so he had to change his normal approaches. He used the Web much more and he realised that there was more good information than he had realised, including ejournals.

5.2 Searching for information

Sean remembered having a library introduction in his first year but said that he wasn't very interested at that point. He has learnt everything since through friends. He knows how to use library catalogues to find material on his reading lists but he liked to search widely when he had an essay to do, following up on interesting ideas:

> *'like a treasure hunt ...you start reading something and it might take you somewhere else and you find another book that you've read about ...[or] bump into books by accident'.*

He found it a problem that even with reading lists you could never really tell which were the most useful books or which ones might contain something useful. Whichever database or catalogue you use you only have the title of the book or article to go on. He feels that there is a lot of guesswork involved.

5.3 Citation & referencing

Sean said that he tended to have long bibliographies.

Selena
Course: BA Hons Anthropology

1. General and background issues

1.1 Choice of course & interests

When she was wondering what to do at university Selena happened to talk to an older relative who had done anthropology at university. This made her realise what the subject was about and she felt it fitted with the kinds of ideas and interests she had. She had thought about Sociology but felt that it was based too much on studying Britain and decided that Anthropology would be much better. Her particular interest is in social anthropology especially social change in modern societies and cultural diffusion. Nevertheless she thinks it is good that the degree includes the biological side, because otherwise Anthropology courses can be seen as a bit lightweight. In her final year she has been able to pursue her own interests so that everything inter-connects.

1.2 Career plans

Selena has done a work placement in a large company and hopes to work for them. Although it is a commercial company she will actually be using her anthropology directly.

2 Degree course in general

2.1 Learning in general

Much of the course opens up your mind to new ideas and gives you a different, more analytical way of thinking. Selena says she now sees the world differently and is always applying anthropological ideas to what is going on. She has also become much more understanding and appreciative of differences where she used to be more judgmental. She's also influenced friends to think differently too. The change is '*dramatic*'.

2.2 Organisation/time

Selena is having to take short cuts in her final year to get everything done especially her dissertation. So for example she based a formative essay on one she had done earlier in her course, just changing it slightly. She is finding the workload '*enormous*' but that is partly because she chose course-work based modules and only has 2 exams at the end of the year.

2.3 Peer roles

Selena has done presentations in some modules where other students give you feedback and make suggestions which is really helpful. She often talks to friends about ideas that come up in the course and about the ideas they are coming across. They also share books and materials, even though her friends are on other Social Science degrees not anthropology.

2.4 Recommended and wider reading

It is important to keep up with the reading on most modules, otherwise there can be *: 'a whole concept gone*'. Selena was doing one module where there were readings each week which were discussed in-depth in class so you really have to do the reading in order to participate. She did not always do the reading if it was not really needed in the module.

2.5 Essays and assignments

When Selena starts on an essay she thinks about what she already knows that is relevant and starts writing as soon as she can. She tries to analyse the question but some are more specific about what they want than others. When they are very open it makes it harder. The most difficult thing with an essay is pulling together the ideas and deciding what is important. Although she enjoys doing that she is also concerned about what the lecturer will think. In the first and second years of the course she felt that you had to write exactly what the lecturer wanted or you would be marked down. Now she says there is more scope but also she has more idea of what is acceptable and what she can get away with.

When she has difficulty with a topic or it is new to her she reads really widely and then eventually the ideas come together and she can see what she wants to say.

Although she doesn't like to do it, sometimes Selena says that she just gets materials from books and '*puts it into your own words, but it's not really your own words*'

She usually feels uncertain about what mark she'll get. At school what mark you got basically related to how hard you worked but at university it is different. She says that as she's writing she imagines the lecturer's comments such as: '*argument not cogent .. using suitable evidence ...conclusion not adequate'*. Although you know their comments you don't know what will apply in each case. Selena always feels that she has understood what she is writing about and has a sense of satisfaction but she may not be able to explain it properly in her essay.

2.6 Exams and revision

Selena thinks that she is bad at exams and they always bring her marks down. She feels that a lot depends on luck and having spotted the right questions. She usually revises using essays. She thinks exams are a waste of time compared to essays where you can spend much longer on something and get feedback.

3. Dissertation

The dissertation was a really good part of the course for Selena and she leant a lot from it. She felt that it was important to chose a topic that was based on: *'deeper questions that you actually have in your own mind, rather than something you've just learnt'*. She chose to look at issues which had affected her own family and which she had been aware of and wondered about before she ever studied Anthropology. She did the fieldwork first and then started to relate it to various theories. She was able to share ideas with friends on other degree courses who were dealing with similar ideas e.g. identity. The study gave her a much greater understanding of different people's experiences and why they thought and acted in certain ways. It was her own project and although her supervisor made various suggestions she was able to say no if it was not what she wanted herself. The supervisor was helpful in lending books and commenting on draft writing but Selena felt concerned as the supervisor usually just said that what she had done was very good and Selena expected more criticism and indications of where she was going wrong.

4 Anthropology & Area Studies module

4.1 Choice of module/interests

Selena has a family background in the region and her dissertation work is based there so this module was an obvious choice. She also did a previous module with Dr Elder and there are some overlaps which makes the workload easier.

4.2 General comments

Selena's knowledge and experience of the region are very helpful in this module. It also means she has less preparation to do and she can still contribute in seminars. Most students have experiences to contribute and that is actually very helpful to everyone's learning, although Selena wonders whether it can be too subjective. On the other hand in some respects it can be more accurate than just something you read in a book because it is first-hand. This is something that doesn't really arise in other modules because your experience isn't so relevant.

4.3 Essays

Selena chose her summative essay title because it was something she was really interested in. She felt that Dr Elder genuinely made it open to your own interpretation so she felt quite confident and thought that what she came up with was quite original. She hadn't read it in any of the books.

5 Information

5.1 Library & information resources

Books were Selena's main information resources. The Web is useful if you want really current information. Selena gave the example of a project where she needed reports of current development work going on. It is also useful for simpler explanations than you find in texts. However she was criticised for using the Web too much earlier in her course and she does not rely on it very much now.

5.2 Searching for information

Because a number of Selena's modules, essays and her dissertation overlap, she has a lot of materials to hand. She took a module where instruction was given in information searching so she is aware of the use of databases to locate journal articles and ejournals but finds them difficult to use. She does not really understand how to locate journals in the library. Because long reading lists are usually provided you don't often need to do your own searching except when you have a major project of your own.

5.3 Citation & referencing

Selena says that students often talk about how many references they've got in their bibliography but sometimes people just put things down that they haven't read to look good. She finds it difficult because sometimes you might not remember where you got a particular idea from and if you cited everything you'd be putting a reference at the end of every sentence. She is not sure how you are supposed to do it.

Shahira
Degree course: BA Hons Area Studies with Language Studies

1. General and background issues

1.1 Choice of course & interests

Shahira had considered applying for varied range of courses at university (Biology , Psychology, Swedish) but eventually chose this degree because of the language element and because she thought it would be 'unusual' rather than a subject like Psychology which hundreds of people do. She thought it would be interesting and a challenge and does not regret her choice. She also liked the place when she came for interview. She has a connection with the region studied, through her father.

1.2 Career plans

Shahira would like to go on to a Masters degree, preferably at the University of Arden because she loves being there. She really wants to continue studying but is not sure what she wants to do longer term.

2 Degree course

2.1 Learning in general

Shahira says that she finds some subjects more interesting than others but couldn't really say why. She thought perhaps it related to the lecturing technique of the lecturer. Learning on the degree is mainly centred around essays and to a lesser extent, exams. Shahira concentrated on trying to produce essays which would meet the individual lecturer's requirements. The degree is made up of a number of different subjects and there is quite a lot of choice. Shahira felt that she had studied a little bit of a range of subjects e.g. History, Politics, Economics, Sociology, Anthropology and a language. However there was some overlap as similar topics came up in different modules so she could draw on other work when it came to writing an essay or for revision. As an outcome of the course she felt that she now knew a lot more about the region and she had learnt the language.

2.2 Organisation/time

Shahira feels that having a formative and a summative essay in each module takes up too much time. She appreciates it sometimes when she finds out from the formative essay what the lecturer really wants but in general she would prefer not to do formative essays.

2.3 Peer roles

Shahira found it difficult in her first year as she was the only person doing a particular combination of subjects so she didn't really know any of her fellow students and had no one to ask when she had difficulties. She now does know some of her fellow students and often asks about how they are approaching an essay and what the lecturer really wants. She swaps essays with friends to use when revising for exams.

2.4 Recommended and wider reading

Sometimes Shahira cannot see the link between recommended readings and what has been covered in lectures or seminars. Most of her reading is related to essays or other assignments or to preparation for exams.

2.5 Essays and assignments

Shahira tends to do a lot of reading starting with the recommended readings although she might look more widely to give her a '*background*'. How much time she spends reading depends on how interested she is. She does the reading first because otherwise she *'wouldn't have a clue what I was talking about'*. She prefers it when the material is easily available in the recommended readings.

Shahira knows that she needs a good structure and argument in an essay but finds that she '*struggles*' and tends to '*drift off*'. She tries to analyse the question so that she has different sections to cover in her essay. She appreciates it when it is clear from the question what the lecturer wants and where. Where it is more complex she hopes the title has '*the discuss word*' so that she can cover all the different views. Often she is not clear what the question wants or

what the specific marker wants. She is not confident of her own judgement of her work because the marks she gets seem to bear little relation to how well she felt she had done. She thinks that marking is quite subjective and different lecturers want different things which you don't necessarily know about and if there is double marking it puts students in a *'no-win situation'*. Although Shahira believes that she usually understands the topic after she has done the reading she finds it very difficult to put it down in a structured essay. She has difficulty coming to a conclusion.

2.6 Exams and revision

Shahira prefers exams to assignments because they take up less time and she can rely on her good short term memory but she worries about the danger of getting *'muddled up'* in exams. She thinks that a lot more is expected of you in essays and your dissertation. When she is reading for her essays she will read more if she thinks it is something that is likely to come up in exams, especially if it relates to more than one of her modules. She also uses her essays and friends' essays to revise for exams. She is worried that there are only two questions to be answered in the AAS exam compared to the usual three as more detail will be expected.

3 Dissertation

Shahira was very disappointed with her dissertation. She did not feel that she had done herself justice. She had difficulty selecting a topic and chose one which she knew her supervisor was interested in. It was also an area which she had already addressed in essays so that she would be able to refer back to them. She did not get much help or feedback from her supervisor and that made it very difficult for her.. It was a historical topic and she felt she was *'just going over old ground'* and there were no different opinions that she could discuss. As she was writing it she lost interest. Students who did first-hand research such as questionnaires had more chance to do well. Shahira relied on books and journals in the university library for her dissertation but found out too late from her supervisor that she could have visited a library in London to get much more material. She was supposed to use some primary materials written in the language she is studying and she put in some material from a translation piece she had done earlier, hoping that would be OK. She thinks she may be able to use some of dissertation work when she revises for some of her exams

4 Anthropology & Area Studies module

4.1 Choice of module & interests

There was limited choice in the final year. Shahira had no great personal interest in Anthropology but a friend said that this module was *'fun'*. It is her first Anthropology module. She prefers subjects she has studied for longer such as history and politics because she is used to them.

4.2 General

Shahira appreciates the clear structure in the module with the use of WebCT materials for 'back up' and handouts every week. Also, Dr Elder emails students to remind them of what is happening or what they need to do. Shahira is not very interested in the subject so she doesn't do as much work as on some of her other modules. She feels that the subject deals with issues which are not related to everyday life or comes up with things which are *'obvious'*.

4.3 Essays

There was clear guidance about what Dr Elder wanted in the essays and recommended reading was indicated so Shahira found it not too difficult to follow what was wanted. There was a choice of titles for each essay and for the summative one she chose a title simply because the recommended books for that one were available in the library. She didn't use many books in the end, about six or seven, plus materials from Dr Elder's WebCT site. Although the essays were not too difficult she still had difficulties with her conclusions. In the summative essay she was not sure if her conclusion were relevant to the question. In the essay she had stated both sides of the argument then in her conclusion stated briefly which one she thought applied.

5 Information

5.1 Library & information resources

Shahira's main sources are books available from the library. She is using journals more in her final year because they appear on reading lists. Also it *'looks better'* if you use journals. With journals you can also find a specific topic rather than looking through a book which covers a lot more. Shahira uses the Web to try to get some ideas on a new topic so that she can search for those specific ideas in the library. She also finds that ideas are often expressed in simpler language on the Web. It is also useful if you can find lecture notes from another university on the subject.

5.2 Searching for information

Shahira said that the only guidance she had had was a library tour in the first week of her degree course. It took her a long time to find out how to use the library. She says that lecturers like to see you finding things for yourself rather than only using the recommended readings. She tends to do that if recommended books are out on loan. Sometimes she is left with just one book from the reading list to use. However if you use other books you need to be careful because the lecturers know which other books are best to use and you might pick up the wrong ones. Shahira does not think she is very good at searching the Web. She is aware of electronic journals but has never tried to use them, she said: *'there must be lots of useful information, but you need to know how to work these things to get into it'*. She often spends a lot of time searching in the library but doesn't feel that she's had *'a productive day'*.

5.3 Citation & referencing

She is not sure whether the number of references used in an essay matters. She thought that you needed a minimum of eight but recently she read that the minimum was four. She is very uncertain about what you have to list and whether it includes books you've consulted but haven't actually quoted from or used directly.

Sophie
Course: BA Hons Anthropology

1. General and background issues

1.1 Choice of course & interests

Sophie had seriously considered doing Art at university but also looked around at more general degrees. Anthropology appealed to her because she had travelled a lot and lived abroad and was interested in other cultures. Aspects of the subject such as material cultures, related to her artistic interests.

1.2 Career plans

Sophie plans to concentrate on her art work after leaving university and see if she can make a living in that way. She also plans to do more travelling.

2 Degree course in general

2.1 Learning in general

Most of the modules Sophie is doing in her final year *'tie in very nicely'* and she is focussing on what she is interested in. Sophie is much more interested in social anthropology but in years one and two she also had to do physical anthropology. This had been a problem for her and she had become quite disillusioned with the course at that point.
Earlier on she also felt that you just had to give the teachers what they wanted to hear. Now she feels there is a good opportunity to pursue your own ideas and to express yourself. She feels she is producing something new rather than just standard essays. Most of her learning is through essays because: *'it forces you to read widely and to think and to assimilate what you're reading to produce something coherent'.* It is important to grasp the key concepts in the subject and sometimes she only knows she has achieved that when she uses a concept in her writing. She frequently applies anthropological ideas to things she hears and sees in everyday life and looks at the world in a particular way. This is the main outcome of the course for her. By studying the subject she has gained a lot of new ideas, new insights and become more socially aware.

2.2 Organisation/time

Sophie feels that as a student you have to balance what you want from university. She realises that she could do more work but she is doing quite well anyway. Recently she had found that she had to balance work priorities. She sometimes did formative essays very quickly using whatever materials she had to hand in order to have more time to work on her dissertation.

2.3 Peer roles

It is very important to Sophie that she can talk to a group of fellow students about the subjects she is studying: *'people have started talking about the subject in their free time and exchanging ideas'.* In one of her modules students had to do a presentation on their topic before completing an essay. She found this useful because there was feedback from other students as well as the lecturer.

2.4 Recommended and wider reading

Sophie doesn't tend to do a lot of reading in preparation for lectures or seminars. One of the main reasons for doing reading is so that you can contribute to discussions and Sophie finds that she can do that anyway because of the work she is doing for her dissertation. She prefers to read what she wants to read rather than what is set for the module.

2.5 Essays and assignments

Normally Sophie spends a long time on essays. She doesn't tend to make a plan or very many notes but keeps the overall picture based on reading in her head. Sophie thinks the reading is the hard part of doing an essay but once you have sorted out your ideas writing the essay is not too difficult. She likes to include illustrations because it makes essays more interesting for the lecturer reading them and is what you would expect in a published piece of work.

Sophie chooses essay titles that '*appeal*'. Usually one title stands out as something that she wants to think about and she starts having ideas immediately based on things she has done before, or personal experiences.
Sophie knew that it was important to have an argument based on evidence and come to a conclusion in essays. In earlier years she had '*churned out*' essays like that. She had found it very difficult to be in the position of having to judge different arguments or views as a student but now she was able to draw more on her own knowledge and personal experiences and '*have more grounds*' on which to judge. Now she said that she was no longer '*doing arguments*' very much and was still getting good marks. She felt that her essays were more inspired and involved relating quite diverse ideas. A few lecturers did criticise her style but mostly she '*got away with it*'.
When she writes an essay she knows if it is good or not but sometimes wonders whether she has answered the question as the lecturer intended. She hopes that the lecturer will enjoy reading it and find something interesting.

2.6 Exams and revision
Sophie said that '*supposedly*' you can pass your exams if you attend lectures and read the set books for the course. She tends to use mostly her own essays and essays exchanged with friends as a basis to revise for exams. She does not think exams are appropriate because they just involve '*cramming*' and she doesn't actually learn anything.

3. Dissertation

Sophie had a difficult time doing the fieldwork for her dissertation and travelling on her own. She had to amend her original ideas because it proved impossible to follow her planned study. She focussed on a particular minority group and their domestic arts and they were very keen to help her because someone was taking an interest and writing about their traditions. This has been studied before, early in the 20th century and by a few more recent researchers. Sophie used that work in writing her dissertation but came up with an alternative analysis as she did not think that the earlier theories ad descriptions fitted what she found. When she came to write her dissertation Sophie dedicated herself to it over several months. She became very committed:

> *'I was passionate about it … It was writing about something I had done myself and I wanted to do really, really well'.*

Her supervisor was helpful in passing on any articles she came across that might be relevant. She also read and commented on draft chapters. Sophie felt that her dissertation was her '*masterpiece*'. She was very pleased that several friends had asked to read it and also the Head of Department has asked to see a copy.

4 Anthropology & Area Studies module

4.1 Choice of module/interests
Sophie did a module with Dr Elder in the previous year and was inspired by her lectures. The Area Studies module also related to her dissertation as she had done her fieldwork in the region covered. The module tied in with her own interests due to the regional emphasis.

4.2 General comments
Sophie saw her modules in her final year as a whole and all interlinked with each other and with her dissertation. The AAS module fitted well.

4.3 Essays
Sophie did not find essays in this module different to others.

5 Information

5.1 Library & information resources
The main resources that Sophie uses are books and journals from the library. She does not use electronic materials apart from the Web. If she has to get some information and ideas quickly, say for a seminar, she uses the Web and she also uses it to access bibliographies or suggestions for further reading.

5.2 Searching for information

Sophie often finds information because friends recommend things. They all know what each other is interested in and there is an '*exchange network*' going on. For major pieces of work such as her dissertation she follows up items in the bibliographies of books she has so far and extends her resources in that way. She developed an initial list from work in a national library in the country where she did her fieldwork. She also used Web sites to provide further references. She said:

> '*I just keep being led on from one thing to another by various means – by word of mouth, by the Internet, by looking in the bibliographies of other books*'.

Sophie attended a module where there was guidance on information searching but didn't learn anything because, she says, she is not very computer literate. She just avoids using things like ejournals. However, she uses the Web because she can cope well with using Google but she always has to print useful things out because she would never manage to find them again.

5.3 Citation & referencing

Lecturers might be pleased to see that you had used journals or a wide range of material but Sophie thought that an essay is '*about how you use what you've got rather than what you use*'. She claimed that a friend had used only one book for an essay and received a first class mark. She usually used 4 or 5 items. Accurate citation is very important to avoid plagiarism.

Stuart
Course: BA Hons Area Studies with Language Studies

1. General and background issues

1.1 Choice of course & interests

Stuart grew up in the region and still had family connections. He had a strong interest there and the degree gave him the chance to follow that up. He was influenced by the high reputation of the University. He was particularly interested in international relations.

1.2 Career plans

Stuart was considering applying for a Masters degree related to his first degree. There were some aspects of his studies that he would really like to continue with. He was feeling rather disappointed as it was becoming clear that employers did not view his degree as highly as he had expected and seemed to rate it on a par with more general social science degrees whereas Stuart had thought he would leave university as a specialist with something specific to offer. He said that he would only do a Masters degree if he was sure that it would enhance his career prospects. He had always imagined that he would continue in his specialist field and now he was having to rethink his options.

2 Degree course in general

2.1 Learning in general

Stuart felt much more confident after his dissertation of going on to do a Masters degree and being able to cope with the kind of research that would be involved. He has found that the degree has helped him to build on the experiences he had, giving a theoretical background so that you understand things better. When asked if there was any conflict between personal experience and knowledge and the course, he said no, it gives you an understanding that you would never otherwise have of what you had experienced:

> *'I won't have seen it for what it is now ... these things were either normal or completely strange, but I had no understanding behind that'.*

However he said he was now much more critical of what he read and heard in the media.

2.2 Organisation/time

No comments on this

2.3 Peer roles

Stuart made no mention of peer interaction except to say that it was difficult to talk to anyone about what he was studying. Either they were not interested or on the more current political topics they had their own ideas gleaned from the news media rather wanting to hear what someone who had been studying the region had to say.

2.4 Recommended and wider reading

Stuart used recommended readings as a starting point for essays. How much reading he did in preparation for classes depended on what was really needed in each module. As far as he could he read specifically what was needed rather than reading more widely.

2.5 Essays and assignments

Stuart tends to start on an essay from the recommended readings but then goes on to search for journal articles using JStor and uses the Internet especially if he is having trouble finding information on specific parts.

When he has a choice of titles Stuart chooses the one which seems clearest to him:

> *'If I can define what I'm meant to be investigating and discussing first of all and then have arguments either way, I usually prefer something specified like that'.*

It is important to make clear to the lecturer the sections of your essay: introduction, main body of argument and conclusion. He feels you should have a definite conclusion. In the argument:

> *'they want themes, issues rather than just facts, one overall theme that will unite the facts that you use to substantiate what you're saying'.*

It doesn't matter so much what you argue as long as you've done the research, mention as many different opinions as possible and you've been prepared to come to a decision on the

basis of it. He doesn't consider which argument he accepts or believes in, it's what there is most evidence for : *'you're looking towards what mark you can get'*. He usually finds that it's quite clear what lecturers want from you in an essay.

2.6 Exams and revision

Lecturers' expectations for an exam answer are quite similar to an essay. You have to have a main idea and get what you are arguing across and come to a conclusion. He doesn't mind exams at all as long as he has done the revision beforehand. From past papers he can usually predict common questions and which themes will be stressed. He then gathers ideas on the issues involved, the evidence and the arguments, ready to adapt them to a specific question. He would probably revise five topics on an exam where you have to answer three questions. The AAS module is quite new but fortunately Dr Elder has put mock exam questions onto her WebCT site. Stuart expects to use her recommended readings and online sources on specific topics for his revision.

3. Dissertation

Stuart chose a topic which was related to a long-standing interest and he also thought he might get access to some good local information from family members in the particular country. He found it difficult because there were no fixed guidelines as there are for an essay so you had to chose a topic and see how it went. At the beginning he wanted to be sure that what he was planning was suitable and would meet the requirements and his supervisor helped him with that. His dissertation was library-based but in addition to books and journals he used various primary sources including government documentation and statistics from a specialist library and some Internet sources e.g. from US Government. He enjoyed doing that and it made him realise what could be done which he had never explored before because there had been no need.

He came to a conclusion which challenged the validity of a particular theory in international relations on the basis of the situation he had researched. He spent a long time revising what he had written, making sure that everything tied in with his conclusion and making everything explicit to the person who was going to mark it.

Stuart thought that his dissertation would get him quite a good mark. His supervisor had commented on drafts and it seemed to be OK. However he found the overall experience disappointing, just like an extended essay. He had expected something more from a dissertation and thought that perhaps it had been *'over-hyped'*.

4 Anthropology & Area Studies module

4.1 Choice of module/interests

Stuart thought that the module would be an interesting introduction to Anthropology but not too difficult because it was building on the knowledge from Area Studies.

4.2 General comments

The module is interesting because it uses anthropological ways of analysing the region. It is well-structured with the use of WebCT which means that you can use the Internet a lot more to get just the information you need to prepare for classes without having to wade through books as much. There is not so much need to do preparation in this module because Stuart, like most of the class, has relevant knowledge and experience to bring into the discussions. In that respect it is unlike his other modules because you can: *'talk quite openly about what you've seen, what you've done and make a comment on it'*. He feels that it is not such an argumentative and theory-based subject as most of the others such as politics and he has enjoyed it. However he realises that there is probably more to it than he is aware of from one module.

4.3 Essays

Stuart chose the essay title which he could define most easily. He thought it would be an interesting topic because he had never come across it before. It gave him the chance to see how Anthropologists looked at an aspect of life in the region and he would like to have the opportunity in future to find out more about the approaches and theories that they use. He had to use the Internet to find information on some specific aspects.

5 Information

5.1 Library & information resources

Stuart uses books from the library but he thinks it is better to use journals, including ejournals. for essays. Articles are more concise and specific and it's a lot less work. He also uses the Web.

5.2 Searching for information

Stuart has few problems in using the library and electronic sources. He does not remember having any instruction on information searching. He can find what he wants in the library using the catalogue. He uses one particular database, JStor to find journal articles. He finds it quite straightforward to pinpoint the actual topics he is looking for. It is much better than using printed lists or indexes as it is similar to searching the Internet. When Stuart uses the Internet he uses a general search engine usually Google. He uses a range of materials but likes electronic sources rather than books because it is easier to go straight to what you want.

5.3 Citation & referencing

Stuart thinks that it definitely matters how long your bibliography is, more so for a summative essay where he has heard you need a minimum of 16 sources:

> '*it's just visual effect and someone looks at your bibliography and sees that you've used thirty books … they're quite impressed and think, well, you must know what you're talking about.*'

He acknowledges that the material you reference has to be relevant and really that is more important.

Appendix 27: Information literacy pathways

Experiences of Acquisition

Minimalist

Purpose/Rationale Aims to do enough to fulfil the requirements of the academic task
Determining information need Does not consider in any detail the requirements of the task in relation to the information to be acquired
Information-seeking process Acquires whatever information resources are most obvious or are the quickest and easiest to obtain Aims to obtain something 'related' which is readily available Deploys a limited range of information seeking skills and knowledge
Criteria for ending information acquisition Stops searching, usually after quite a short time, when the student feels that enough time and effort has been put in Is satisfied with a limited amount of information resources of some relevance

Gathering

Purpose/Rationale Acquires information resources in order to clarify the topic and assignment requirements Aims for a broad coverage of the topic in order to understand it and produce a good assignment Aims to accumulate as many information resources as possible
Determining information need Takes a broad view on what information resources might be relevant for the task Believes that he or she does not know enough to determine in advance what might be required Is concerned about the assessment requirements in the sense of 'what the lecturer really wants'
Information-seeking process Gathers information on the topic in a broad, rather unfocussed way Deploys a limited range of information seeking skills and knowledge Information seeking is likely to be extensive rather than precise Finds information searching rather laborious and difficult
Criteria for ending information acquisition Stops searching and gathering resources when he or she runs out of energy or comes up against time limits May have difficulty moving on from information acquisition to the actual production of the assignment

Pinpointing

Purpose/Rationale Aims to find the right information which will assist them to do well in the assignment and understand the topic Views information searching as a skilled process and gains satisfaction from carrying it out
Determining information need Determines information requirements by analysing the task to be done, the meaning of terms, and considering 'what the question is after'
Information-seeking process Searches systematically for relevant information using a range of search tools. Modifies search strategies if the initial results are deemed inadequate Tries to use approaches and information tools which enable direct access to the resources needed without wading through extraneous materials Demonstrates a reasonably high level of competence in information searching techniques (relative to other students in the same context)
Criteria for ending information acquisition Stops searching when they judge that they have enough information for the assignment with no 'gaps' in knowledge or evidence May engage in iterative searching, undertaking further searches at later stages in assignment writing, if a need to provide more specific information or to answer questions is identified

Connecting

Purpose/Rationale Intends to develop own understanding of the topic and produce a good assignment which represents this Focuses on 'doing something with' whatever information is acquired. The information contributes to the developing piece of work rather than determining it
Determining information need Reviews own knowledge, interests and ideas, and issues covered elsewhere in the course in relation to the task. This is used as a starting point for seeking new information May re-visit information resources that have been used previously
Information-seeking process Conducts information searching as a trail, moving from one item to another Relevance depends on a developing understanding of the topic and the emerging form of the assignment. A wide range of information may be used Is alert to potential connections when searching for something else or working on a different academic task Discusses ideas with fellow students and lecturers who may recommend or loan further information resources Does not consider information searching techniques as particularly important and may not be especially competent compared to other students in the same context
Criteria for ending information acquisition Integrates information searching with writing and producing the assignment so that both go on at the same time. This means that some information resources may be acquired and used at a very late stage Determines that there is 'enough' information when a good understanding is reached and what he or she wants to say in the assignment is clear and complete

Experiences of production

Minimalist

Overall aim or intention To produce an assignment as quickly and easily as possible
Role of information Aims to present information obtained with minimal personal transformation Uses a limited amount of information resources
Structure Undertakes very little if any planning or organising of the assignment, using only a generic structure Includes a conclusion in the form of a summary or formulaic statement
Audience Aims to demonstrate to the audience (the assessor) that they have done enough and have put in time and effort
Relationship to assessment Believes that style and presentation are of key importance in marking and may affect marks more than content Claims to understand what is required well enough to meet assessment requirements at an adequate level

Organising

Overall aim or intention To produce a good assignment and learn something about or understand the topic involved
Role of information Is guided by the information resources acquired and is unlikely to do additional information searching in the production phase Incorporates information and ideas from a range of information resources Presents a range of information, such as different views or evidence, in an organised way Likes to have a reasonably large number of references
Structure Undertakes basic planning of the assignment and links information resources with specific sections Works on sections rather than linkages or flow between sections Is aware of the need to have an argument, theme or viewpoint but is not clear about how to put this into practice Writes a conclusion at a late stage and this may be in the form of a summary, an afterthought or personal comment, not closely related to the body of the essay
Audience No reference to audience
Relationship to assessment Is conscious of what lecturers want but unclear about what is really meant and whether they have met the requirements May be especially concerned about 'answering the question' or 'keeping to the title'

Performing

Overall aim or intention To produce a good piece of work and do well
Role of information Works with and transforms the information they have gathered May search for additional information or evidence as the work progresses Uses information as evidence to support the argument, theme or viewpoint of the assignment Is likely to have a relatively high number of relevant references
Structure Keeps in mind the overall argument/theme/viewpoint of the assignment Focuses on the assignment as a whole, with a logical flow, theme or links between sections Uses critical thinking approaches to handle conflicting, complex or potentially biased information Knows what kind of conclusion they intend to come to at an early stage, perhaps in some detail
Audience Tries to demonstrate explicitly to the audience (the assessor) how they have met the requirements
Relationship to assessment Keeps in mind throughout the requirements for the assignment Has understood or internalised the expectations for academic work

Communicating

Overall aim or intention To explore a topic or question following own interests To communicate what they want to say on the topic
Role of information Integrates information acquisition and production of the assignment Builds understanding through the assimilation of a range of information, views and opinions Uses information resources in some depth but may not have a particularly large *number* of references
Structure Considers the coherence of the piece as a whole and draws on a range of ideas Views the theme, argument or conclusion as the culmination of the work but it may not become clear until a late stage when their understanding and ideas have developed Sees production as a creative act of communication and may use an idiosyncratic structure
Audience Wants to communicate own views and ideas to the audience (the lecturer) Expects the lecturer to be interested in what he or she has to say
Relationship to assessment Has an understanding or awareness of academic requirements but is guided by the topic and their own approach, rather than necessarily producing a 'standard' assignment